

Remarks

Reconsideration of this Application is respectfully requested.

Status of Claims

Claims 1-18 are pending in the application, with claim 1 being the independent claims. Claims 19 and 20 were previously withdrawn without prejudice to or disclaimer of the subject matter therein. No changes to the claims have been made, and no new matter has been added. Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1-3, 6-8, 10-12, and 15-16 were rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Application Publication No. 2007/0055582 to Hahn-Carlson ("Hahn-Carlson"). Applicants respectfully traverse.

Hahn-Carlson does not qualify as a valid reference under 35 U.S.C. § 102(b). According to 35 U.S.C. § 102(b), "[a] person shall be entitled to a patent unless ... the invention was patented or described in a printed publication in this or a foreign country ... **more than one year prior** to the date of the application for patent in the United States. 35 U.S.C. § 102(b) (2002) (emphasis added). Hahn-Carlson is not a patent, and Hahn-Carlson was printed on March 8, 2007, **after** the filing date of the instant application — not before. Thus, Hahn-Carlson does not qualify as a valid reference under 35 U.S.C. § 102(b).

Hahn-Carlson also does not qualify as a valid reference under 35 U.S.C. § 102(e). A published patent application would qualify as a valid reference under 35 U.S.C. § 102(e) against the claims of the instant application only if the published patent application has an effective filing date prior to the filing date of the instant application. *See* 35 U.S.C. § 102(e) (2002). Although the actual filing date of Hahn-Carlson (*i.e.*, October 6, 2006) is after the filing date of the instant application (*i.e.*, December 31, 2003), Hahn-Carlson claims the benefit of several earlier filing dates based on several non-provisional applications having filing dates that pre-date the filing date of the instant application. Thus, in order for Hahn-Carlson to qualify as a valid reference under 35 U.S.C. § 102(e), “the subject matter used in the rejection must be disclosed in the earlier-filed application[s] in compliance with 35 U.S.C. 112, first paragraph.” MPEP § 2136.03(IV). However, the earlier-filed applications do not contain the subject matter relied on by the Examiner.

Hahn-Carlson is a continuation-in-part (CIP) of two applications that have filing dates prior to the filing date of the instant application:

- (i) U.S. Application No. 10/437,405 filed May 12, 2003 (corresponding to U.S. Publication No. 2004/0010463, which is attached hereto as Exhibit A); and
- (ii) U.S. Application No. 09/527,717 filed March 17, 2000 (attached hereto as Exhibit B).

In addition, the ‘405 application and the ‘717 application are each CIPs of U.S. Application No. 09/259,657 (now U.S. Patent No. 6,571,149, which is attached hereto as Exhibit C). Although the ‘405, ‘717, and ‘657 applications each have filing dates that pre-date the filing date of the instant application (*i.e.*, December 31, 2003), none of these references disclose the subject matter that the Examiner relied on in the rejection of

claims 1-3, 6-8, 10-12, and 15-16. *See* Exhibits A-C. Thus, Hahn-Carlson is not a valid reference under 35 U.S.C. § 102(e).

Because Hahn-Carlson does not qualify as a valid reference under 35 U.S.C. § 102(b) or § 102(e), Hahn-Carlson cannot anticipate claims 1-3, 6-8, 10-12, and 15-16. Accordingly, Applicants respectfully request that the rejection of claims 1-3, 6-8, 10-12, and 15-16 be reconsidered and withdrawn.

Rejections under 35 U.S.C. § 103

Claims 4, 5, 17, and 18

Claims 4, 5, 17, and 18 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hahn-Carlson in view of U.S. Application Publication 2005/0027654 to Adrian (“Adrian”). Applicants respectfully traverse.

As set forth above, Hahn-Carlson does not qualify as a valid reference under 35 U.S.C. § 102(b) or § 102(e). Thus, Hahn-Carlson cannot properly be used in a rejection under 35 U.S.C. § 103(a). Therefore, the rejection of claims 4, 5, 17, and 18 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicants respectfully request that the rejection of claims 4, 5, 17, and 18 be reconsidered and withdrawn.

Claims 9, 13, and 14

Claims 9, 13, and 14 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Hahn-Carlson in view of Adrian, and further in view of U.S. Patent No. 6,167,385 to Hartley-Urquhart (“Hartley-Urquhart”). Applicants respectfully traverse.

As set forth above, Hahn-Carlson does not qualify as a valid reference under 35 U.S.C. § 102(b) or § 102(e). Thus, Hahn-Carlson cannot properly be used in a rejection

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under 35 U.S.C. § 103(a). Therefore, the rejection of claims 9, 13, and 14 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicants respectfully request that the rejection of claims 9, 13, and 14 be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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Exhibit A



US 2004/0010463A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0010463 A1**
(43) **Pub. Date: Jan. 15, 2004**(54) **AUTOMATED TRANSACTION PROCESSING SYSTEM AND APPROACH**

(60) Provisional application No. 60/379,561, filed on May 10, 2002.

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(52) **U.S. CL.** 705/39; 705/26; 705/37; 705/400(57) **ABSTRACT**

Transaction management for contract and contract-related approaches is facilitated. According to an example embodiment of the present invention, a transaction management computer is programmed to automatically set contract terms for a transaction based on business rules previously established between parties to a transaction. In one implementation, the transaction management node automatically derives a contract term including a pricing-related term for a transaction between a buyer and seller using contract information therefor. In one instance, previously-agreed-upon price approaches, such as fixed pricing, seller-controlled pricing, quantity-related tiered pricing and pricing management schemes are stored and used by the transaction management node to automatically derive the prices. With these approaches, pricing disputes that can occur after a transaction has been processed are reduced and/or eliminated.

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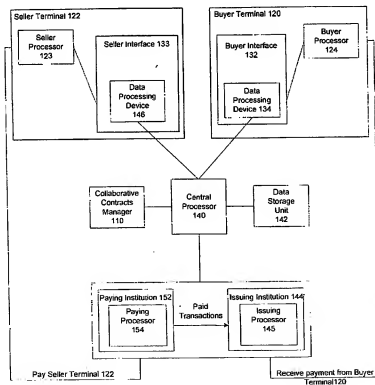
(21) Appl. No.: 10/437,405

(22) Filed: May 12, 2003

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/259,657, filed on Feb. 26, 1999, now Pat. No. 6,571,149, which is a continuation of application No. 08/745,243, filed on Nov. 12, 1996, now Pat. No. 5,910,896.

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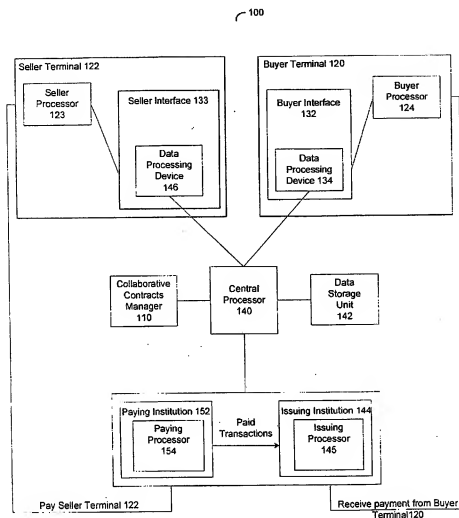


FIG. 1

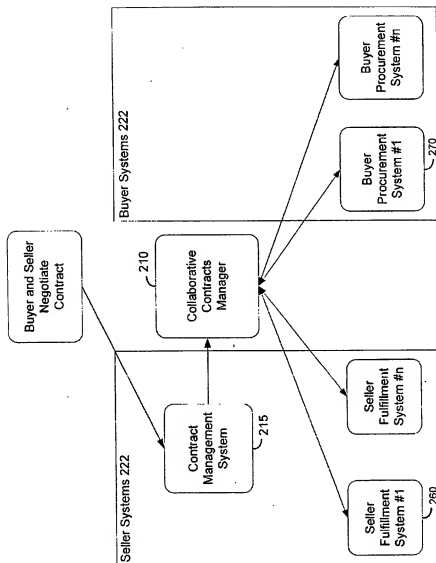


FIG. 2

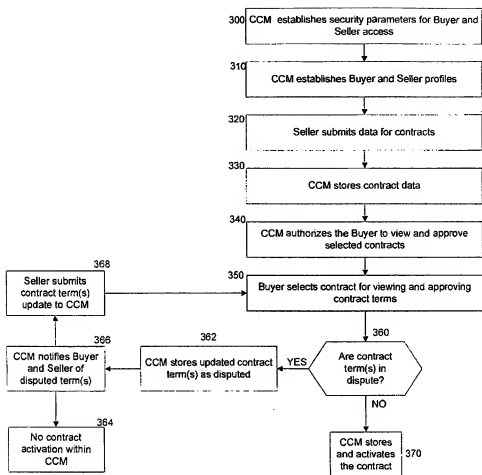


FIG. 3A

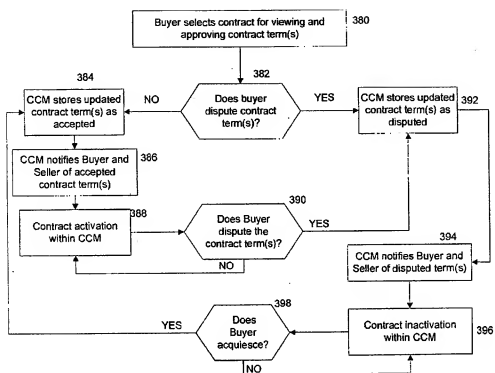


FIG. 3B

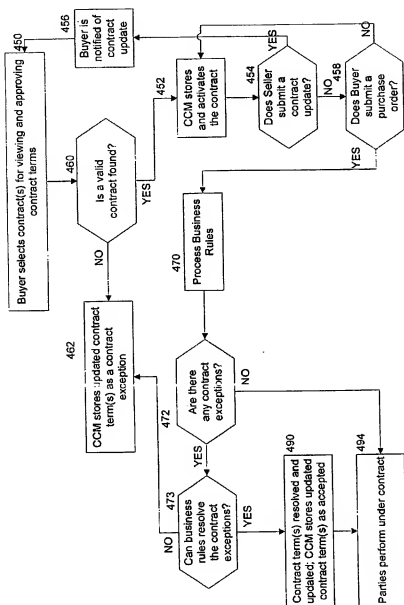


FIG. 4A

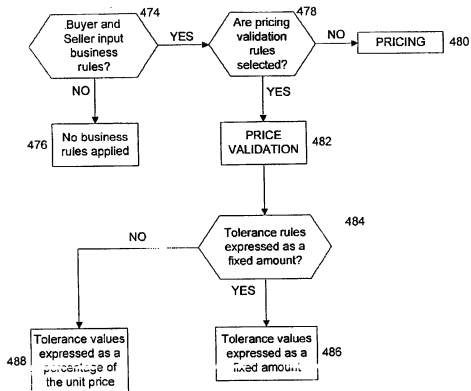


FIG. 4B

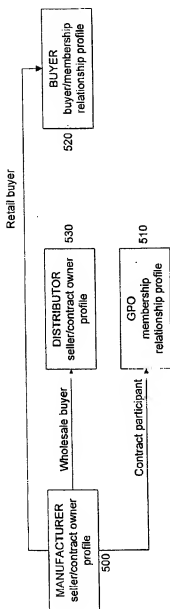


FIG. 5A

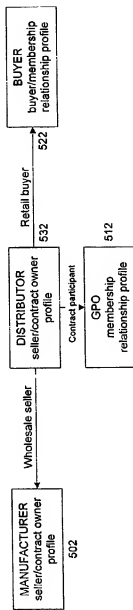


FIG. 5B

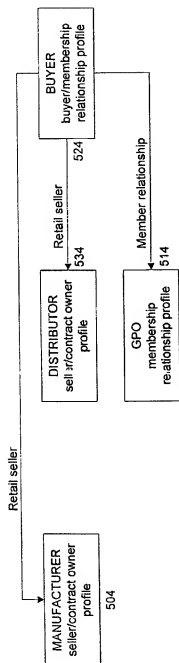


FIG. 5C

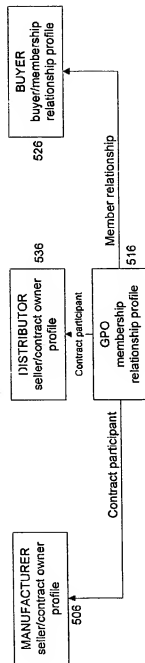


FIG. 5D

AUTOMATED TRANSACTION PROCESSING SYSTEM AND APPROACH

RELATED DOCUMENTS

[0001] This patent document is a continuation-in-part of U.S. patent application Ser. No. 09/259,657 (USBA,002C1), filed Feb. 26, 1999 now U.S. Pat. No. _____, which is a continuation of U.S. patent application Ser. No. 08/748,243, filed on Nov. 12, 1996, now U.S. Pat. No. 5,910,896 entitled, "Shipment Transaction System and an Arrangement Thereof." This patent document further claims priority to U.S. Provisional Patent Application Serial No. 60/379,561 (USBA,101P1) and filed on May 10, 2002, to which priority is claimed under 35 U.S.C. §120 for common subject matter, and which claims priority to the same U.S. patent document (U.S. Pat. No. 5,910,896), which is fully incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention is directed to communications and data processing and, more specifically, to communications and data processing involving the establishment and implementation of contracts.

BACKGROUND

[0003] Operational management of contractual and transactional interactions between buyers, sellers and others involved in the exchange of products for purposes of commerce have typically been labor and time intensive. Generally, the processes of managing transactions between business entities have been unduly burdensome and inefficient. The various parties involved in a transaction typically change proposed terms and aspects of a proposed transaction on a concurrent and/or iterative basis. Data representing each corporate participant's view of the interaction is stored across one or more enterprise systems managed by that particular corporate participant and not accessible by other corporate participants. Consequently, it can be difficult to know which draft document represents the most current information about the interaction and whether the parties to the transaction have a common understanding. Where the corporate participants have communicated electronically (e.g., via email and Internet-enhanced communications), these document-synchronization difficulties have been compounded by an increased number of co-existing draft documents being viewed by the parties. Commercial transactions then become more difficult as business entities attempt to perform business with each other.

[0004] A typical commercial interaction between a seller offering a product and a buyer desired to acquire that product moves through multiple steps. First, the buyer and the seller negotiate an agreement as to the price the buyer will pay. When this agreement covers an extended period of time it is typically formalized in a contract or catalog. Contracts and catalogs are typically maintained by the seller in a seller-managed computer system that is separate from the computer system or systems which the seller uses to accept orders, fulfill orders and generate invoices. When the invoice system used by the seller to bill the buyer has a different price file than is resident in the seller-managed contract system, pricing exceptions will occur which will increase the cost of the interaction because buyer and seller

personnel will have to resolve the differences a transaction can be completed. The problem can be compounded when the buyer loads the current contract prices into its procurement system for determination of whether the seller is billing correctly during the pre-payment order/invoice reconciliation process. All of seller's invoicing systems could be representing the current contract while one or more of the buyer's systems still represent an expired or not yet active contract. Some or all of the seller's invoicing systems could be representing expired or not yet active contracts while all of the buyer's procurement systems are up to date. The number of combinations of events leading to transaction misunderstandings and disagreements contributes significantly to the overall cost of settling for the exchange of products. As a further complication, the contract contents, the order, the invoice and other documents representing the transaction and required to settle the transaction often only exist in paper form for access to the individuals attempting to resolve exceptions. Further, the data that does exist electronically is often scattered across numerous applications such as accounts payable, accounts receivable, purchasing, accounting, buyer or seller group, shipping, and receiving. Moreover, where each buyer does business with many sellers and each seller does business with many buyers, tracking such drafts becomes increasingly more difficult.

[0005] One type of transaction for which the above difficulties apply is a shipping transaction. Traditional approaches have led to many challenges to managing transactions between one shipper and one carrier. Typically, however, there are multiple carriers and shippers involved in multiple transactions, which makes the management process more complex, and that much more time-consuming and inefficient. The process is labor intensive in that it relies on physically matching the hard copy of a bill of lading (BOL) for proof of delivery with the hard copy invoice and then trying to apply the terms of a hard copy contract to calculate whether the invoice amount is proper to pay. Exceptions need to be communicated to the trading partner, often involving faxing or mailing paper copies of support materials. Responses to requests for information often results in more paper copies with hand-written annotations that alter the understanding of how the transaction actually transpired. The ensuing series of repetitive and time consuming steps are a source of additional operational expense for both buyer and seller. Also, each BOL is often rated multiple times by multiple parties creating excessive redundancy.

[0006] Due to such difficulties and convoluted processes, traditional shipment transaction management systems are highly susceptible to billing errors and fraud. For example, there has been no connection between the delivery of goods and when the shipper is billed for delivery. This may result in double billing, no billing at all, or overbilling the shipper for freight delivery charges. Also, auditing errors may occur, which results in incorrect billing or payment. In addition, the carrier waits a disproportionately long time for payment while the invoice is being audited and/or disputed. For example, traditionally, a delivery takes about five days whereas payment takes about forty-five days. This delay adversely affects the carrier's working capital resources which, in turn, raises the carrier's cost of doing business and raises the prices the carrier must charge to earn the economic return required to remain in business.

[0007] Additional costs arise as a result of the existing inefficiencies. Many of the costs are individually small, but very large in the aggregate. For example, the carrier incurs administrative costs including: the cost to create and deliver the initial invoice, costs of resolving billing disputes, costs of providing a signed copy of the BOL to the shipper, and costs of posting accounts receivable. The shipper incurs similar administrative costs to receive the bill, match it with the BOL, manually check the contracts to determine if pricing is correct, generate and deliver payment to the carrier.

[0008] Another challenge present in many traditional systems involves the incompatibility of product and service (hereinafter the terms "product" and/or "service" are collectively referred to as "product") reference identifiers between buyers, sellers and other related entities (e.g., a distributor or group purchase organization (GPO)). When multiple reference identifiers are used, tracking and reconciling business transactions become more difficult. The complexity of modern business has also lead to expensive administrative costs associated with commercial transactions. Administrative costs include personnel, software, hardware, and entire departments created for managing commercial transactions to ensure accurate and timely billing and payment. Even with the expensive administrative cost, most transactions have typically relied on paper as the means of communicating within and between corporations. Paper copies are expensive and difficult to track and are not simultaneously accessible from geographical disparate locations. Disputes can also occur with various paper copies circulating within and between corporations (e.g., price discrepancies, short pays, and lengthy price disputes). These disputes can result in burdensome and lengthy negotiations, further frustrating both the buyer and seller. Additionally, the disputes can lead to a deterioration or possibly extinction of the relationship between the buyer and seller. Further costs are incurred if new buyers or sellers need to be found.

[0009] Most industries are quite competitive and any cost savings are therefore important. Administrative costs are targeted for reduction as no revenue is directly generated from administrative functions. However, administrative costs associated with commercial transactions have been difficult to reduce in the current business environment with widely diffused data.

[0010] The above and other difficulties in the management and coordination of business transactions have presented administrative and cost challenges to business entities on both the buyer and seller ends of transactions, as well as those involved in other aspects of such transactions, including distributors and buying organizations (such as GPOs) who negotiate contracts on behalf of a large, disparate group of buyers.

SUMMARY

[0011] The present invention is directed to overcoming the above-mentioned challenges and others related to the types of devices and applications discussed above and in other applications. The present invention is exemplified in a number of implementations and applications, some of which are summarized below.

[0012] In a first example embodiment, the present invention is directed to a transaction management system that

manages transactions using an approach that is based on business rules previously established by buyer(s) and seller(s). The transaction management system includes a computer and communications node adapted for deriving prices for transactions as a function of pricing rules that are agreed upon by buying and selling entities related to the transaction.

[0013] According to another example embodiment of the present invention, a database approach is implemented for communications and/or transaction management regarding contract and price information. Buyer(s) and seller(s) can set pricing, period in which pricing is to be effective, and other contract-related aspects in advance of any transaction to be performed under that contract, and these aspects can be implemented in connection with further transactions, with modifications to these aspects being implemented manually and/or automatically. In one implementation, the responsibility of reviewing, accepting, and/or disputing new or updated prices is oriented to the buyer of products being contracted for. Sell prices can be set, for example, for particular buyers, purchasing organizations, classes of buyers or all buyers, with a particular price being associated with a transaction as a function of the defined characteristics of the buyer. Prices can also be set as a function of definable terms associated with buyers and/or sellers, with a final price being automatically accepted in response to the definable terms. In another implementation, where prices are disputed, the buyer and seller work together to reach terms acceptable to both parties, using a database approach to record negotiated terms.

[0014] With the approaches discussed in the previous paragraph, many of the challenges discussed in the background above (e.g., price discrepancies, short pays, and lengthy price disputes) are minimized or completely eliminated. For instance, a single source of product prices and contracts can be implemented for usage by a variety of buyers and/or sellers, with communications and/or negotiations for a particular transaction being selected based on the buyer(s) and/or seller(s) involved. With all relevant data available to all parties and systems at a central source the synchronization issues in business transactions are eliminated. Buyers and sellers can collaboratively review and approve the contract prior to its use without either party necessarily having to allow the other access to its enterprise systems. Use of the approved data from a central transaction management system ensures that both the buyer and seller are using the most recent agreed upon price. In addition, the centralized transaction management system records the precise time of agreement and the identity of the party executing the agreement.

[0015] In another example embodiment, an electronic interface is configured and arranged for interfacing with the transaction management system discussed above. The electronic interface is adapted to execute search functions and access information pertaining to contract terms, such as product prices, contracts, effective dates, and price notes. In one implementation, the electronic interface is adapted for providing user identification data for use by the transaction management system for controlling aspects of the interface, such as authorization, recordation, display and functional capabilities. With this approach, a single source of electronically accessible information can be implemented for finding products that suit user needs in an efficient manner.

[0016] The above summary of the present invention is not intended to describe each illustrated embodiment or every implementation of the present invention. The figures and detailed description that follow more particularly exemplify these embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The invention may be more completely understood in consideration of the detailed description of various embodiments of the invention in connection with the accompanying drawings, in which:

[0018] FIG. 1 shows an arrangement and approach for transaction management, according to an example embodiment of the present invention;

[0019] FIG. 2 shows another arrangement and approach for transaction management, according to another example embodiment of the present invention;

[0020] FIG. 3A shows an automated transaction approach involving a collaborative contracts manager, according to another example embodiment of the present invention;

[0021] FIG. 3B shows another automated transaction approach involving a collaborative contracts manager, according to another example embodiment of the present invention;

[0022] FIG. 4A shows an approach to automated contract performance using a collaborative contracts manager, according to another example embodiment of the present invention;

[0023] FIG. 4B shows an approach for automated pricing business rule application, in connection with another example embodiment of the present invention; and

[0024] FIGS. 5A-5D show approaches for establishing automated transaction management in connection with a variety of users and according to other example embodiments, wherein:

[0025] FIG. 5A shows a manufacturer-based perspective;

[0026] FIG. 5B shows a distributor-based perspective;

[0027] FIG. 5C shows a retail buyer-based perspective; and

[0028] FIG. 5D shows a group purchasing organization-based perspective.

[0029] While the invention is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not necessarily to limit the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION

[0030] The present invention is believed to be applicable to a variety of different types of communications and financial process management approaches, and has been found to

be particularly useful for applications involving the operational implementation and application of pricing to transactions, payments, tracking and related aspects thereof. While the present invention is not necessarily limited to such approaches, various aspects of the invention may be appreciated through a discussion of various examples using these and other contexts.

[0031] According to an example embodiment of the present invention, a central transaction management arrangement uses transaction information for buyers and sellers of products to automatically derive pricing and/or payment options for individual transactions. The transaction information may include, for example, the identities of the buyer and seller, the products being purchased, the date of the purchase and the specific contract under the terms of which the transaction is being executed. For instance, specific contracts under the terms of which a transaction is being prosecuted may include prices agreed upon between a buyer and seller for a particular item and/or rules agreed upon for setting certain prices between a buyer and seller. In one instance, prices associated with a particular product are automatically set by the central transaction management arrangement to correspond to transaction information assigned to a particular buyer of the products. The prices may be set, for example, using predetermined prices agreed to by the buyer and seller involved in the transaction. In another implementation, pricing arrangements such as quantity discounts, group discounts and conditional price variances (e.g., an acceptable percentage of variance in cost associated with fluctuating shipping costs, market prices and others) are further automatically implemented in response to the transaction information and the approved contract details in the central transaction management arrangement.

[0032] In a more particular implementation, the transaction management arrangement is adapted to use reference contract information regarding pricing from a particular manufacturer, for example, offered to a particular buyer based on that buyer's membership in a group purchasing organization. When a buyer requests a transaction for products covered by the reference contract from a manufacturer-authorized distributor, the transaction management arrangement uses the reference contract information and adds the distributor's markup to derive a final price for the buyer. In another instance, the transaction management arrangement derives the seller's final price by applying the seller's specific discount or surcharge to an industry standard price list (e.g., motor freight tariff). In another instance, the reference contract information is specific to a particular buyer, or to a group purchasing organization (GPO) to which the particular buyer belongs. In this manner, the reference contract and any contract between a buyer and the GPO are nested, with the nested contracts being used to derive a particular term for a transaction for goods. In still another implementation, the transaction management arrangement is adapted to restrict use of the reference contract to selected buyers and, in response to a buyer request, first determine whether the particular buyer making the request is eligible to use the reference contract.

[0033] Various example embodiments of the present invention may provide advantage to applications such as discussed in U.S. Pat. No. 5,910,896, referenced above. For example, as discussed in the previous paragraph, variances

in shipping costs, managed using one or more approaches not inconsistent with those discussed in U.S. Pat. No. 5,910,896, can be automatically implemented and approved using the stored transaction information. In addition, for general information regarding transactions and for specific information regarding implementations to which various example embodiments of the present invention are directed, reference may be made to the documents attached to the provisional application identified above and to which priority is claimed.

[0034] Another example embodiment of the present invention is directed to a database system adapted for automated transaction management that provides a single source of product prices and contracts. In advance of any transaction, prospective buyers and sellers negotiate and/or validate prices and contracts, or simply validate the electronic representation of prices and contracts negotiated through other means. The buyer reviews, accepts and/or disputes updated contract term(s). Once the buyer accepts a contract, a processing center stores the accepted contract and activates the contract for current and/or future business transactions. A collaborative contracts manager applies business rules for actual performance of the contract, with the buyer and seller involved in the transaction defining the applicable business rules. Business rules may, for example, be derived from and/or include buyer and/or seller profile information that includes contract-related data such as product, pricing, shipping, payment terms, currency type, customs information and other typical contract data. Furthermore, the business rules can be stored in a database at the collaborative contracts manager processor. All pricing information and business rules are retrievable by a centralized transaction manager or by applications remote from the collaborative contracts manager such as those located at the buyer or seller location. Potential performance disputes are automatically resolved by the collaborative contracts manager, for instance, by using the predefined and accepted business rules to automatically arrive at performance characteristics prior to executing a transaction. By approaching transactions in this manner, many of the shortcomings of traditional systems (e.g., price discrepancies between different entities of a corporation, short pays, and lengthy price disputes) are minimized or completely eliminated.

[0035] The buyer and seller profiles discussed herein may include a variety of information for use in transaction management and otherwise. For instance, a typical such profile includes one or more of the following data: general ledger charts of accounts, identification of computer systems submitting contract or transaction data to the collaborative contracts manager, customer lists, vendor lists, contract and price approval policies, transactional approval policies, business rules, operational roles (e.g., defining what functions a user associated with that role can perform), organizational hierarchy (e.g., defining how much of a company's data universe a user associated with a particular organizational node can access), and users. Seller customer list profiles may also include information further defining the business relationship with the customer from the Seller's perspective, for example, such as a retail buyer relationship, wholesale buyer relationship, etc. Buyer vendor (e.g., seller or distributor) list profiles may also include information further defining the business relationship with the vendor from the Buyer's perspective. Such seller and buyer rela-

tional information may, for example, include those discussed further below in connection with FIGS. 5A-5D.

[0036] In another example embodiment, a central database and transaction management system uses four types of data to manage transactions. The types of data include security/privilege data, access-control data, entity profile data, and business rules data. Security/privilege and access control data types provide the appropriate levels of protection (e.g., log-in and password data) to the data stored and processed by the system and also provide access to such information at various levels/hierarchies within each company. For example, once a company is enrolled or registered to use the system, initial implementation includes definition of operational filters that define how a user (within an organization level or otherwise) can access the transaction information and/or interact with the system. Such operational filters can include, for example, filters that limit the extent to which a user (e.g., employee or agent of the company) can: approve/hold/deny/cancel/update transactional steps, view transaction-related data, and analyze the data.

[0037] The entity profile data type permits the system to track the enrolled companies, their vendor identifier numbers, the associated accounts and contracts, and provides for mapping between organizational levels within enrolled companies and between enrolled companies; where this mapping includes tracking of the various entities as well as the products at issue for processing transactions. Using the entity profile data type, the business rules data type are defined by the enrolled companies for their anticipated transactions to permit the system to process transactions with specified sets of characteristics, for example, to support self-invoicing, and to implement EIPP (electronic invoicing presentment and payment) with or without (product-ID) matching. With the above data in place, the system permits the respectively enrolled organizations to continue conducting business using descriptors meaningful to their organizations, while interpreting and processing these descriptors at the system according to the entity profile data and the business rules data.

[0038] Once established, a variety of transactions and transaction management activities can be implemented using these data types. In one example, the above data types are used to derive a specific term by which a transaction is managed (e.g., to derive a price to assign to a particular transaction, to derive a particular mark-up to add to a base price or to identify a particular product requested by a user-specific identification number).

[0039] In another example, the data is used to execute a variety of financial data-processing modules within the central database and transaction management system. Six kinds of financial data-processing modules are exemplified and shown and discussed in an attachment hereto which is identified as Appendix A (including seventeen pages).

[0040] In one particular implementation, profile information such as business rules, operational roles, authorization levels and/or other attributes are specific to particular levels and/or individuals within a particular entity. This profile information is stored in the central database and transaction management system discussed above and used for implementing transactions. For example, when a particular company includes different subsidiaries, divisions or locations, profile information can be tailored for the particular source.

Certain profile information can also be implemented to supersede other profile information, for example, when a particular subsidiary is assigned different specific pricing terms, relevant to another subsidiary of a common company.

[0041] In another example embodiment of the present invention, an electronic interface is configured and arranged for providing user access to a collaborative contracts manager such as discussed above. Purchases of goods can be made using the electronic interface to communicate with the collaborative contracts manager and pricing rules engaged thereby. The electronic interface also facilitates user-executed search functions for accessing information such as product information, product prices, contracts and price notes. Access to information via the collaborative contracts manager by the user interface is adaptively controllable, for instance, using authorization approaches including user identification, interface identification, password access and others. With this approach, a single source of electronically accessible information is made available for pricing, contracting and related matters to a multiplicity of parties, which allows users associated with those parties to efficiently find a product or products that suit their needs.

[0042] In another example embodiment, a transaction management system stores information for buyers and sellers and communicates therewith using an identification approach for users at the buyer and/or seller level. The system controls access to the stored information as a function of user identification (ID), with access parameters controlled for processes such as contract modification, price modification, display configuration, access to the stored information for that particular user and others. Using seller offerings that make up at least part of the stored information for a particular seller, as well as buyer access controls, the seller offerings are automatically configured for usage by the individual users. The automatic configuration may, for example, include price, delivery and payment options. In response to the seller offerings and other stored information, the transaction management system is adapted for accepting purchase requests from buyers and communicating the purchase requests to the seller from which the purchase is to be made. The transaction management system is further adapted for accepting acknowledgment of receipt by the buyer either manually (e.g., an individual buyer logs into the system with a user ID and confirms receipt) or electronically (e.g., buyer's inventory receiving systems automatically generate and transmit a detailed notice of receipt). Once receipt is acknowledged, the system communicates that acknowledgment to the seller. In one implementation, the system is further adapted for automatically paying the seller in response to the receipt acknowledgment. In another implementation, the system is further adapted to invoice the buyer for the purchase.

[0043] In another implementation, the transaction management system discussed in the preceding paragraph is further adapted for accepting a receipt of purchase acknowledgment including receipt characteristics. For example, characteristics such as total acceptance of goods, partial acceptance of goods and rejection of goods at the invoice or receipt line item level can be included in the acknowledgment. This information can be required as being verified for ensuring compliance before payment for a transaction is executed. An invoice for a particular transaction can be updated with this and other transaction-fulfillment-related

information. Using this approach, problems with received purchases, such as damaged goods, improper goods, etc., can be readily addressed. The various invoicing and payment-related characteristics are correspondingly modified (e.g., payment is only made for accepted portions of goods, or credit for the cost of returning goods is granted).

[0044] Transaction billing and payment is managed using an approach including third-party control, according to another example embodiment of the present invention. Buyer and seller entities involved in a transaction use a third party to coordinate purchases and payment thereof. The seller communicates offerings (e.g., goods with price and shipment characteristics) to the third party, and buyers access the offerings via the third party. When a request for purchase of the seller offerings by a buyer is made to the third party, the third party submits the request to the seller and pays the seller for the purchase. In one implementation, the payment is not effected until the buyer has acknowledged receipt. The third party then charges one or both of the seller and buyer a fee for handling the purchase, and correspondingly bills the buyer for the purchase.

[0045] In a more particular example embodiment, buyers and sellers approve contracts using a collaborative contract manager and submit order and invoice quantities for executing the contracts to a central processor arrangement (e.g., including the collaborative contract manager). The central processor arrangement then uses the prices from the collaborative contracts manager to establish the amount of the settlement (i.e., price) between the buyer and the seller. In one instance, the seller uses the collaborative contracts manager as the central repository called by various seller fulfillment systems. In another instance, the buyer uses the collaborative contracts manager as the central repository called by various buyer procurement systems.

[0046] In still another example embodiment of the present invention, a collaborative contracts manager is adapted to assign a pricing term to transactions using a product identification (ID) matching approach and business rules. The product ID matching approach involves matching a product ID to business rules and, therefore, deriving a pricing term for purchase of the product to which the ID relates. For example, when buyers and sellers, or even different buyers within a single organization, use different product IDs for the same goods, the collaborative contracts manager matches the buyer's product ID to a seller product ID and, therefore, uses business rules to derive a price for the particular product to which the product IDs refer. In a more particular implementation, the product ID includes embedded information relating to the product and other characteristics of the transaction, such as the origin of the product, the destination of the product and a mode of shipping for the product. In another implementation, the product ID includes information relating to a line item of a particular contract where a product is listed.

[0047] FIG. 1 is a communication system 100 including a collaborative contracts manager 110 for handling business transactions between a seller and a buyer, according to another example embodiment of the present invention. The communications system 100 includes a seller terminal 122 and a buyer terminal 120. The seller terminal 122 includes a seller processor 123 adapted to generate a seller profile, one or more authorized buyer profiles and contract data and

to communicate the profiles and contract data to a seller interface 133. The seller interface 133 includes a data processing device 146 adapted to establish rules for a business transaction by submitting a seller profile, one or more authorized buyer profiles and contract data (i.e., received from the seller processor 123) to a central processor 140. The seller interface 144 is further adapted for displaying contract data received from the central processor 140, and communicating to the seller from the central processor 140 the acceptance or dispute of contract data by a buyer. The central processor 140 electronically organizes a seller's contract data using a seller's profile, with the contract data and profile being stored in a data storage unit 142. Ownership and access to the seller's contract data stored in the data storage unit 142 is controlled by seller, for example, using criterion such as user authorization or password protection.

[0048] The buyer terminal 120 includes a buyer processor 124 adapted for generating a buyer profile and communicating the generated profile to a data processing device 134 at a buyer interface 132. The buyer interface 132 is adapted for displaying contract data received from the central processor 140 and the data processing device 134 communicates the acceptance or dispute of contract data as input at the buyer interface 132 to the central processor. The central processor 140 is coupled to a collaborative contracts manager 110 that provides an interface for buyer and seller transaction management including pricing management. The central processor 140 processes and stores pertinent business transaction information in the data storage unit 142, with access thereto being restricted to authorized users (i.e., authorized buyers and sellers via buyer and seller terminals). Using the buyer and seller profiles, the collaborative contracts manager 110 automatically sets prices for transactions between the buyer and seller.

[0049] In a more particular implementation, the central processor 140 interfaces with a payment system 141 including an issuing institution 144 and a paying institution 152. An issuing processor 145 of the issuing institution 144 maintains a credit account for the buyer terminal 120 and debits a particular buyer terminal's account for transactions managed with the communications system 100, such as the shipment cost of a product, the product cost and others. In response to transactions managed at the central processor 140, a paying processor 154 of the paying institution 152 tenders payment to the seller terminal 122, for example, when the receipt of goods is acknowledged by a buyer or at the time a buyer makes a purchase.

[0050] FIG. 2 illustrates one approach for implementing a collaborative contracts manager (CCM) 210, which provides an interface for a buyer system 220 and a seller system 222 for transaction management, according to another example embodiment of the present invention. The CCM 210 addresses synchronization issues between the buyer system 220 and the seller system 222, such as those discussed above, by implementing pricing rules that have previously been agreed upon such that disputes over transaction price are typically eliminated. These pricing rules may include, for example, criterion defining pricing data that can be automatically approved (e.g., offerings within a selected buyer variance), and also control pricing information made available to different users of the CCM 210. The pricing rules may also include, for example, prices associated with a particular quantity of products, with different per-product

prices being assigned for particular quantities of products (e.g., such as with a volume discount). In addition, the CCM 210 may be located geographically remote from both of the buyer and seller systems 220 and 222, such that buyer access to the CCM does not require access to either the buyer's own systems or seller systems and seller access to the CCM does not require access to either the seller's own systems or buyer systems. This structure eliminates security concerns for both parties relative to either party granting the other party access to the first party's systems.

[0051] A contract management system 215 of the seller system 222 loads contract data into the CCM 210. A seller fulfillment system 260 manages customer orders and inventory, fulfills orders, and provides invoices for the goods provided. The seller fulfillment system 260 communicates with the CCM 210 for access to contract and other data (e.g., using a network computer link). In one implementation, the CCM 210 tracks order fulfillment for showing the percentage of an order quantity that has been fulfilled.

[0052] A buyer procurement system 270 is programmed for reviewing contract data, generating orders, and auditing invoice price to order price. The buyer procurement system 270 also communicates with the CCM 210 for access to contract and other data, such as product catalogue data maintained by the seller system 222. The CCM 210 maintains the most current contract data, which has been found useful in reducing or even eliminating any misunderstanding of contract data by either or both the buyer system 220 and seller system 222.

[0053] In a more particular implementation, the CCM 210 is further adapted to search for contracts for a particular item offered by different sellers and to identify prices for purchase of the item by a particular buyer. For instance, when a buyer requests a particular product at the best price from the CCM 210, a search is performed using the buyer's information and seller information to identify eligible contracts (e.g., the seller and buyer meet each other's criteria for establishing a contract). Once eligible contracts are identified and pricing for execution of the contracts for the particular item (and other transaction information, such as quantity and delivery options) have been determined, a contract with the lowest price is selected and implemented. With this approach, a buyer can automatically have a lowest-price eligible contract identified and implemented for purchasing products.

[0054] The buyer and seller systems 220 and 222 may, for example, communicate with the CCM 210 and/or each other using a communications link, such as the Internet. Each of the buyer and seller systems and the CCM 210 include a communications port for facilitating these communications. For instance, when the communications are over the Internet, the communications port includes an Internet-protocol interface, for communications over links such as a telephone line, DSL line, cable line or wireless link.

[0055] In another implementation, the CCM 210 is configured to return one of three conditions: 1) no contract is found naming a requested buyer, seller and product combination, 2) no contract is found with a currently valid price for the requested buyer, seller and product combination and 3) a contract is found with a currently valid price for the requested buyer, seller, product combination and requested quantity. With situations 1 and 2, the CCM 210 generates a transaction audit exception (e.g., through processes dis-

cussed below in connection with FIGS. 3A and 3B). Either the buyer or seller can access the CCM 210 to resolve the exception in situations 1 and 2, after which the CCM can be accessed to execute the contract consistent with situation 3.

[0056] The approaches shown in the remaining figures may, for example, be implemented in connection with the collaborative contracts managers and other arrangements shown in FIGS. 1 and 2 and discussed above in connection therewith. In this regard, reference is made to portions of the figures discussed above by way of example in the following discussion.

[0057] FIG. 3A is a flowchart illustrating an example approach for automated transaction management with a collaborative contracts manager, according to another example embodiment of the present invention. At block 300, security parameters managing the access of buyer and seller terminals (with corporate and/or individual users) to shared contract data are managed using security infrastructure in the collaborative contracts manager. In this instance, the collaborative contracts manager (CCM) may, for example, include the CCM 110 of FIG. 1 or a combination of the CCM 110 and the central processor 140. A unique user ID and password is issued to each individual user (i.e., an individual person) authorized by a buyer entity (i.e., an individual business, a business division, or a buying group) for accessing the CCM. Similarly, a unique user ID and password is issued to each individual user authorized by a seller entity (i.e., an individual business, a business division or a distributor) for accessing the CCM.

[0058] At block 310, the buyers and sellers submit profiles to the CCM using buyer and seller terminals (e.g., buyer and seller terminals 120 and 122 of FIG. 1, respectively). The CCM is programmed for establishing different profiles for a variety of users, such as buyers, sellers, contract owners, and contract participants. At block 320, the seller terminal submits contract data that can be formalized by a legal document or simply represent a unique set of prices for a specific customer (e.g., buyer or buyer group) or set of customers. The seller terminal may, for example, be adapted for defining whether it is only a particular named participant (e.g., buyer organizational element) that can access the contract, or the named participant and any organizational element reporting into that named participant. Non-contract data and quoted sell prices by customer and product can also be submitted. A seller terminal can be used to submit public or private contracts, with public contracts being available to a buyer organization, for example, self-identified as meeting the target criteria, and private contracts being selectively available to seller-defined buyer groups, for example, that meet the target audience criteria. In one implementation, the buyer/seller must belong to a purchasing organization that is eligible for a particular contract in order to execute transactions using the contract terms (e.g., to take advantage of pricing arrangements for members of the purchasing organization).

[0059] At block 330, upon receipt of contract information, the collaborative contracts manager 110 stores contract data in its database. After a contract or contracts have been recorded, the CCM invokes the buyer's business rules to determine if the contract is to be automatically accepted. If this is the case, the CCM records the contract as approved for use in pricing. If the buyer's business rules require

manual pricing, the CCM communicates the existence of contracts needing review to the buyer and authorizes the buyer terminal (e.g., upon submission of an acceptable user ID, password, etc., by a user at the buyer terminal) to view and approve selected contracts according to the buyer's profile at block 340. Once approved, future transactions that are governed by the contract are automatically priced using the CCM.

[0060] As discussed above, in order for a buyer to execute transactions using a particular contract requiring authorization, the buyer must be authorized to do so (e.g., belong to a purchasing organization that is eligible for the contract or have negotiated the contract directly). Furthermore, the particular user at the buyer terminal must have the operational right as defined within operational roles to approve contracts, for example, using an authorization level set by a buyer organization.

[0061] Inputs received through the buyer terminal are used to select a contract for viewing and approving contract terms at block 350. In one instance, the buyer terminal and the CCM are adapted for implementing a find, or search, function for communicating available contracts to a user at the buyer terminal. For instance, a user at the buyer terminal can launch a find function to generate a list of contracts through a user interface at the buyer terminal. The CCM communicates with the buyer terminal for communicating (e.g., displaying) a list of one or more contracts that satisfy search criteria input at the buyer terminal. A user at the buyer terminal can then select a contract for viewing from the results of the search.

[0062] Users at the buyer terminal can accept or dispute contract term(s) for a selected contract at block 360. In one implementation, sellers can update contracts or establish new contracts with prospective buyers being responsible for reviewing and accepting or disputing new or updated contract terms (e.g., sell prices). In some implementations, buyers are automatically notified of new or updated contract terms (e.g., by signing up for a notification email). If contract term(s) are not in dispute at block 360, then the contract term(s) are accepted, the identity of the approver and the date/time of approval are captured and stored with the contract and the contract is activated for use at block 370. The buyer and seller may then apply these prices to individual invoices and orders processed after the contract has been accepted. If contract term(s) are disputed, the CCM stores contract term(s) as disputed at block 362 as well as the date/time the dispute was notified and the identity of the party initiating the dispute. In addition, the buyer user can enter notes in the CCM indicating the buyer user's rationale for disputing the contract term. These notes become an indelible part of the contract terms stored in the CCM. The CCM identifies the disputed contract term(s) to the particular buyer and seller involved in the dispute at block 366 and flags the disputed contract term(s) for review.

[0063] In the event a seller decides to respond to the dispute, the seller submits a response at block 368. Such a response may, for example, include sending a contract term update to the CCM, entering notes in the CCM indicating where the buyer's reasoning is flawed, said notes becoming an indelible part of the contract terms stored in the CCM, or by making changes through the CCM. A variety of contract terms can be updated, such as contract eligibility, product

availability, product price, price effective dates and tier eligibility. In the event the seller chooses not to acquiesce to buyer disputes and the buyer does not approve the contract after the dispute is stored at block 362 and the buyer and seller are notified at block 366, contract activation does not occur, as shown at block 364. Access to the CCM for inputting seller responses to disputed terms is controlled with a user authorization approach, such as discussed above. A user at the buyer terminal may then select an updated contract for viewing and approving contract terms at block 350, with the process resuming from there.

[0064] FIG. 3B is a flowchart illustrating an example automated transaction management approach utilizing a collaborative contracts manager (CCM), according to another example embodiment of the present invention. FIG. 3B may be implemented, for example, in connection with buyer review and approval of new contracts and subsequent review and approval of existing contracts and/or proposed contract terms that a buyer initially disputes but later accepts.

[0065] FIG. 3B begins at block 380 with a user at a buyer terminal selecting a contract for viewing and approving contract term(s). At block 382, the user enters inputs at the buyer terminal for accepting or disputing contract term(s) for the selected contract. If contract term(s) are accepted at the buyer terminal, the updated contract terms are stored as accepted at block 384, the CCM notifies the buyer and seller of the accepted terms at block 386. A contract is then activated within the CCM at block 388, where it is used to set transaction terms such as pricing for transactions between the buyer and seller. The contract remains activated unless the buyer and/or seller decide to change and/or dispute terms (and, in the condition that certain terms can be changed within limits without changing the accepted status of the contract, the contract remains activated if these changes are effected within the limits).

[0066] If contract term(s) are disputed at the buyer terminal (e.g., a buyer inputs disputed and/or alternate terms at block 382), the CCM stores the updated contract term(s) as disputed at block 392. The buyer and seller are both notified of the disputed terms at block 394. The disputed contract term(s) are stored as an inactivated contract within the CCM at block 396, where it remains inactivated unless the buyer decides to accept the previously disputed terms at block 398 (i.e., requests a change in the contract at a later date). If the buyer accepts the previously disputed contract term(s) at block 398, the CCM stores the updated contract term(s) as accepted at block 384, where the process continues as discussed above. If the buyer does not accept the previously disputed contract term(s) at block 398, the contract term(s) remain as inactivated at block 396. The CCM then can process the disputed contract term(s) in one or more of a variety of approaches. For example, by deleting the information regarding disputed terms or maintaining the disputed terms for a pre-selected time during which the buyer may acquiesce.

[0067] FIG. 4A is a flowchart illustrating an example approach for automated contract performance after a contract has been formed utilizing a collaborative contracts manager (CCM), according to another example embodiment of the present invention. FIG. 4A begins at block 452 with a CCM storing and activating contract terms previously

agreed upon by a buyer and a seller (e.g., using buyer and seller terminals as discussed above). If the seller submits a contract update at block 454, the buyer is notified of the contract update at block 456. The buyer reviews the updated contract at block 450 and, if an acceptable and valid contract is found at block 460, the updated contract is stored and activated at block 452. For instance, a valid contract including a currently valid price for the particular buyer, seller, product combination and requested quantity is found at block 460, the contract is stored and activated at block 452. If a valid contract is not found at block 460 (e.g., no contract is found naming the requested buyer, seller and product combination, or with a currently valid price for the requested buyer, seller and product combination), the CCM stores the updated contract terms as having a contract exception. If the seller does not submit a contract update at block 454, the current (accepted and activated) contract is used for buyer purchases.

[0068] Once the contract is stored and activated at block 452, and in the absence of any contract update by the seller at block 454, the stored contract is ready for use. At block 458, a buyer submits a request for performance of the stored contract, for example, using a purchase order. At block 470, the CCM examines buyer and seller business rules for performance details of the purchase in connection with the request for performance. The business rules may, for example, include buyer and seller profile information, such as information relating to acceptable variances in contract terms that can automatically be approved. For general information regarding transactions and for specific information regarding profile approaches that may be implemented in connection with these and other example embodiments, reference may be made to the above-discussed patent entitled "Shipment Transaction System and an Arrangement Thereof" to Hahn-Carlson. For instance, pricing, shipping and other contract terms can be verified and/or modified using these approaches. In one implementation, the business rules are processed at block 470 using a business rules processor that is either part of or separate from the CCM. If the request for performance falls within prescribed terms of the stored contract, there is no contract exception(s) (e.g., an expired contract or a performance dispute such as a different price or shorter performance date) at block 472 and the buyer and seller perform under the contract at block 494.

[0069] If there is a contract exception at block 472 and the business rules can resolve the contract exception at block 473, the contract terms are resolved and updated at block 490. For example, if the seller's and/or buyer's business rules tolerate flexibility in the performance, these tolerances are used to automatically adjust the terms of the contract for the particular performance requested at block 458. The buyer and seller then perform under the contract using the contract terms updated in response to the performance dispute. If the business rules cannot resolve the exception at block 473 (e.g., if the buyer requests a lesser price than the seller will provide and the buyer's business rules do not allow for flexibility in the price), the contract term(s) are stored as having an exception at block 462.

[0070] FIG. 4B is a flowchart illustrating an approach for programming a collaborative contracts manager (CCM), according to another example embodiment of the present invention. Once programmed, the CCM is adapted for managing transactions, such as by deriving or otherwise

providing pricing therefor. Buyer and Seller profiles are used to define business rules for the CCM. For one implementation of the CCM at block 474, the buyer and/or seller may input business rules for automated contract performance (e.g., using buyer and seller terminals as discussed above). Price business rules, for example, may be selected by the buyer and seller as none (no rules), pricing (fixed or tiered price), or pricing validation (validation per rules). If no price business rules are input at block 474, then no price business rules are applied at block 476 and the CCM is not used for establishing pricing for contract performance. These pricing business rules are implemented when a contract has been stored and activated within the CCM.

[0071] In some implementations, a variety of other business rules are also implemented in connection with the example embodiments discussed in connection with FIG. 4B. In one instance, the total purchases from a particular buyer or group of buyers during the term of the contract may be limited to not exceed a selected amount; once the selected amount has been reached, purchases under the contract are not allowed. In another instance, the total purchase of items on a given line item within a contract is limited not to exceed a selected number of units of quantity (or amount in price) in which the contract will be executed. In another instance, the contract is limited by timing rules, such as the effective date (e.g., at both contract and line item level) of the contract, the expiration date (e.g., at both contract and line item level) of the contract, as well as the type of date that drives the effective and expiration dates (e.g., the order date, invoice date and/or receipt date).

[0072] If price business rules are input at block 474, then the buyer and seller can select pricing or pricing validation business rules at block 478. If the buyer and seller do not select pricing validation rules at block 478, then pricing rules are applied at block 480. When a buyer placing an order selects pricing rules, the CCM uses contracts and product price information to apply prices to each item on the order at block 480. When a seller selects pricing rules, the CCM uses contracts and product price information to apply prices to each item being sold as part of a particular contract.

[0073] If pricing validation rules are selected at block 478, then pricing validation business rules are applied at block 482. In this case, stored prices are used by the CCM to validate, for example, the price provided from a buyer's procurement system and/or a seller's fulfillment system (e.g., buyer procurement system 270 and seller fulfillment system 260 of FIG. 2) at block 482. The price that is provided by the procurement and/or fulfillment system is the price used in reconciling order and invoice prices, when validated. In this regard, the CCM uses contract and product price data to audit the order price against the contract or list prices at block 482. If price validation is selected by the buyer, the CCM will use contracts and product price information to audit the order price against contract or list prices. If price validation is selected by the seller, the CCM will use contracts and product price information to audit the invoice price against contract or list prices.

[0074] For instance, using price validation rules, the buyer and seller may establish tolerance values for unit prices at block 484. The buyer and/or seller may choose to express the tolerance values as a percentage of the fixed price or as a fixed amount at block 484. In one implementation, the

tolerance values are expressed as a percentage of the unit price at block 488. In another implementation, the tolerance values are expressed as a fixed amount of the unit price at block 486.

[0075] The above approaches discussed in connection with FIG. 4B can be implemented in a variety of manners. For instance, in one example implementation using pricing business rules, the buyer and seller establish that pricing business rules will be applied for automated contract performance. If pricing business have not been applied, the CCM does not provide pricing for the transaction (e.g., as processed by the central processor 140 of FIG. 1). If business rules are selected, the buyer and seller can decide whether to use pricing or pricing validation business rules. If pricing rules are selected, then the prices automatically set by the CCM are the definitive prices used for contract performance.

[0076] In another instance, pricing validation rules are selected and prices from the CCM are used to validate prices provided by the seller's fulfillment system and/or the buyer's procurement system. The buyer and seller will also establish tolerance values expressed as a fixed amount or percentage of the unit price. For example, if the buyer and seller both have a three percent tolerance value for the unit price, pricing validation rules are used to determine whether the prices in a particular transaction meet these tolerances. For instance, if the unit price stored in the CCM is one percent less than the unit price stored in the seller's fulfillment system and one percent greater than the unit price stored in the buyer's procurement system, the difference in the unit price of the CCM is within the three percent tolerances. The price validation business rules will therefore effect automatic approval of the transaction because the three-percent tolerance has been met for both the buyer and seller. The transaction will proceed using the unit price from the CCM if buyer and seller have previously agreed to contract performance in this manner.

[0077] Alternatively, the buyer may have agreed to use the unit price stored in the CCM provided that the unit price in the buyer's procurement system is within the three percent tolerance of the unit price in the CCM. In another alternative, the seller may have agreed to use the unit price stored in the CCM provided that the unit price in the seller's fulfillment system is within the three-percent tolerance of the unit price in the CCM. These and other alternatives can be readily implemented in connection with the examples discussed above and with those shown in FIG. 4B.

[0078] FIGS. 5A-5D are block diagrams illustrating example user profile configuration approaches with relationships shown between buyers, sellers and organizations for use with a collaborative contracts manager (CCM), such as discussed above, according to other example embodiments of the present invention. A plurality of user profiles are supported, including seller (e.g., manufacturer or distributor), buyer, contract owner, and member profiles. A seller/buyer profile is arranged so that the seller/buyer for whom the profile is established acts as a financial participant in contracts established using this approach, and may submit contract data as participant and/or as a contract owner. A member relationship profile facilitates access to transactional data, but does not necessarily act to facilitate financial participation of the user for whom the profile is established.

With these approaches, contract terms such as pricing and others can be managed using a CCM.

[0079] Referring now to FIG. 5A, block 500 represents a manufacturer operating as a seller and/or contract owner who submits a product list, contract cost, and eligible buyers to the CCM. The manufacturer at block 500 views a group purchasing organization (GPO) (block 510) as a contract participant, an individual buyer (block 520) as a retail buyer and a distributor (block 530) as a wholesale buyer. The contract approaches for each relationship with the manufacturer 500 are tailored for the particular relationship. For instance, if an individual buyer 520 accepts a contract, the CCM stores a sell price. If a contract submitted by the manufacturer 500 is accepted by a distributor 530, the CCM stores a contract cost that is then used for future transactions between the distributor and the manufacturer. Similarly, if a GPO 510 accepts a contract offered by the manufacturer 500, the CCM stores the contract for use by members of the GPO.

[0080] The example embodiment shown in FIG. 5B illustrates an example user profile configuration from a distributor perspective. A distributor at block 532 has profile information including seller and/or contract owner information that is stored at the CCM. The distributor 532 views relationships with a manufacturer at block 502 as a wholesale seller relationship, with a GPO at block 512 as a contract participant relationship and with an individual buyer at block 522 as a retail buyer relationship. Price relationships between the distributor 532 and the manufacturer 502, GPO 512 and buyer 522 are stored at the CCM.

[0081] FIG. 5C illustrates an example user profile configuration from a buyer perspective at block 524. The buyer 524 has profile information including buyer and/or membership profile information that is stored at the CCM. The buyer 524 views relationships with both a manufacturer at block 504 and a distributor at block 534 as retail seller relationships (i.e., when the manufacturer sells directly to retail buyers). The relationship between the buyer 524 and a GPO at block 514 is a membership relationship, with the buyer being able to use contract terms assigned to the GPO and stored at the CCM.

[0082] FIG. 5D illustrates an example user profile configuration from a GPO perspective at block 516. The GPO 516 views relationships with both a manufacturer at block 506 and a distributor at block 536 as a contract participant relationship, with the GPO participating in contracts stored at the CCM in connection therewith. The GPO 516 views a relationship with a buyer at block 526 as a member relationship, with information regarding the membership of the buyer stored at the CCM, and the buyer correspondingly able to participate in contracts for the GPO 516 also stored at the CCM.

[0083] While certain aspects of the present invention have been described with reference to several particular example embodiments, those skilled in the art will recognize that many changes may be made thereto without departing from the spirit and scope of the present invention, aspects of which are set forth in the following claims.

What is claimed is:

1. An automated pricing system for use by a buyer and seller who provide business rules for use by the automated pricing system, the automated pricing system comprising:

a computer and communications node adapted to receive and use the business rules to derive a specific term for a transaction to be implemented by the buyer and seller, the transaction having a price that is set as a function of the specific term.

2. The system of claim 1, wherein the computer and communications node is adapted to derive a specific term that includes a price term.

3. The system of claim 1, wherein the computer and communications node is adapted to store the business rules.

4. The system of claim 1, wherein the computer and communications node is adapted to retrieve the business rules from a node remote from the computer and communications node.

5. The system of claim 1, wherein the computer and communications node is adapted to receive proposed product-pricing data from a seller and to provide the product-pricing data to potential buyers and, upon acceptance by a potential buyer, storing the product-pricing data, and wherein the computer and communications node is further adapted to use the stored product-pricing data to set the price of a transaction to be implemented between said potential buyer and seller.

6. The system of claim 1, wherein the computer and communications node is adapted to receive business rules from the buyer and seller via data entry terminals remote from the computer and communications node.

7. The system of claim 6, further comprising at least one of the data entry terminals.

8. The system of claim 6, wherein the computer and communications node is programmed to control access to the computer and communications node for transmitting the business rules from the data entry terminals.

9. The system of claim 1, wherein the computer and communications node is further adapted to match a product identification term from the buyer with a seller product for identifying a particular product for which the specific term is derived.

10. The system of claim 9, wherein the computer and communications node is adapted to assign a buyer identification term to a particular seller product in response to an input from at least one of the buyer and the seller.

11. The system of claim 1, wherein the computer and communications node includes a pricing engine programmed to use business rules and transaction information to derive a pricing term for a transaction, the transaction information including at least one of a contract identifier for the transaction, an item identifier for an item being sold, quantity and order date.

12. The system of claim 11, wherein the pricing engine is adapted to identify transaction prices to a buyer for a selected transaction between the buyer and at least two sellers.

13. The system of claim 12, wherein the pricing engine is adapted to automatically select and execute a lowest-price transaction between the buyer and one of the sellers for which the selected transaction is the lowest price, relative to the selected transaction between the buyer and the others of the at least two sellers.

14. The system of claim 11, wherein the pricing engine is adapted to identify prices for a particular transaction between the buyer and a plurality of sellers and to inform the buyer of the prices.

15. The system of claim 1, wherein the business rules include compliance information that must be met before making the transaction payable, wherein the computer and communications node is further adapted to use the compliance information to authorize payment for the transaction.

16. The system of claim 15, wherein the compliance information includes at least one of: notice of delivery of goods, notice of receipt of goods, notice of acceptance of goods, receipt of customs clearance and payment of customs fees.

17. An automated transaction system comprising:

a buyer terminal configured and arranged to interface with a buyer, display seller offerings and receive and transmit buyer contract information from the buyer;

a seller terminal configured and arranged to interface with a seller, display at least some of the seller offerings and receive and transmit seller contract information from the seller; and

a centrally-accessible computer and communications node adapted to communicate with the buyer terminal and the seller terminal and to provide a common source of data for users of the buyer terminal and users of the seller terminal, the data including characteristics and pricing of the seller offerings, and further adapted to automatically derive rules by which purchases of the seller offerings are made in response to contract information including transaction pricing information from at least one of the buyer and the seller.

18. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further adapted to automatically characterize and modify rules by which purchases of the seller offerings are made using nested contracts involving a manufacturer's contract with a buying organization that specifies a base sell price for an item and a buyer's contract with the buying organization for said item.

19. The automated transaction system of claim 18, wherein the centrally-accessible computer and communications node is configured and arranged to use the nested contracts and the base sell price to establish a seller offering for display at the buyer terminal.

20. The automated transaction system of claim 19, wherein the centrally-accessible computer and communications node is further adapted to add a markup to seller offerings available through a buying organization and to directly quote a final sell price to potential buyers, using the nested contracts, the base sell price and the markup.

21. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further adapted to input, access, maintain, and manage rules determining conditions for user interaction with the system.

22. The automated transaction system of claim 21, wherein the centrally-accessible computer and communications node is further adapted to input, access, maintain, and manage buyer rules including at least one of: buyer rules for determining conditions for user interaction with the system; seller rules for determining conditions for user interaction

with the system and seller offering information for determining a unit cost of seller offerings.

23. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further adapted to store at least one criterion defining ownership of data and access to data and, using the at least one criterion, control information made available to a user via the centrally-accessible computer and communications node.

24. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further adapted to store at least one criterion defining what pricing data can be approved by the system without human interaction and, using the at least one criterion, control information made available to a user via the centrally-accessible computer and communications node.

25. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further configured and arranged for cross-referencing different identification numbers from a plurality of sources, the different identification numbers corresponding to a single product.

26. The automated transaction system of claim 25, wherein the centrally-accessible computer and communications node is further configured and arranged to use the cross-referenced identification numbers to identify characteristics of a single product.

27. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further configured and arranged to store the buyer and seller profile information and to use the stored profile information to automatically negotiate contract terms in response to a request for change in terms input via at least one of the buyer and seller terminals.

28. The automated transaction system of claim 27, wherein the centrally-accessible computer and communications node is configured and arranged to use the profile information to automatically negotiate payment terms of the seller offerings in response to a buyer-input request for a change in payment terms.

29. The automated transaction system of claim 27, wherein the centrally-accessible computer and communications node is configured and arranged to use the profile information to automatically negotiate shipping terms of the seller offerings in response to a buyer-input request for a change in shipping terms.

30. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is further configured and arranged to receive updated seller offering characteristics from the seller terminal and, in response, to send a notification to the buyer terminal of the updated seller offering characteristics.

31. The automated transaction system of claim 30, wherein the centrally-accessible computer and communications node is further configured and arranged to receive an acceptance notification of the updated seller offering from the buyer terminal and, in response, to update the rules by which purchases of the sellers offerings are made.

32. The automated transaction system of claim 31, wherein the centrally-accessible computer and communications node includes a database configured and arranged to store seller offering characteristics and wherein the centrally-accessible computer and communications node is further configured and arranged to update the database to

include new seller offering characteristics corresponding to the updated seller offering characteristic.

33. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is adapted to store product identifiers with associated sell prices input via the seller terminal and to use the stored product identifiers and associated sell prices to automatically form a contract in response to a buyer purchase request for product corresponding to the stored product identifiers and at the stored associated sell price for the product identifier.

34. The automated transaction system of claim 33, wherein the centrally-accessible computer and communications node is adapted to store sell prices for selected quantity ranges of product corresponding to the stored product identifiers, and in response to receiving a request from the buyer terminal for a particular quantity of product, to automatically execute a contract for purchase of the product at the stored sell price for the selected quantity range in which the particular product quantity falls.

35. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is configured and arranged to search for and identify contracts meeting search criteria submitted from at least one of the buyer and seller terminals and to report the identified contracts to the at least one of the buyer and seller terminals submitting the search criteria.

36. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node includes a database configured and arranged to store product information and to cause the catalog information to be displayed at the buyer terminal.

37. The automated transaction system of claim 36, wherein the centrally-accessible computer and communications node is further configured and arranged to use buyer configuration information specific to a selected buyer at the buyer terminal and to configure the displayed catalog information for the selected buyer.

38. The automated transaction system of claim 17, wherein the centrally-accessible computer and communications node is adapted to track order fulfillment characteristics.

39. The automated transaction system of claim 38, wherein the centrally-accessible computer and communications node is adapted to track the percentage of an order quantity that has been fulfilled.

40. A centrally-accessible computer and communications node configured and arranged to:

communicate with a plurality of buyer terminals and seller terminals and to provide a common source of data for users of the terminals, the data including seller offerings;

control access to the data and for configuring the type and arrangement of the data to be communicated with the at least one buyer terminal in response to the identification of a buyer receiving the communications; and

for a transaction to be implemented by a buyer for the seller offerings, use business rules for the buyer and sellers to automatically derive a price term for the transaction.

41. The centrally-accessible computer and communications node of claim 40, further comprising:

at least one computer configured and arranged for accessing data from the common source for communicating the data; and

at least one communications port configured and arranged for transmitting signals with at least one of the terminals.

42. The centrally-accessible computer and communications node of claim 41, further comprising identification means configured and arranged for identifying a buyer at a buyer terminal for configuring the type and arrangement of the data to be communicated to the buyer.

43. The centrally-accessible computer and communications node of claim 42, wherein the identification means includes a computer programmed to identify a buyer in response to an identification input.

44. The centrally-accessible computer and communications node of claim 42, wherein the computer is programmed to communicate seller offerings to buyers in response to the identification of the buyer.

45. The centrally-accessible computer and communications node of claim 44, wherein the computer is programmed to communicate seller offerings of the same product to different buyers, the communicated offerings having terms and conditions that are selected in response to the identification of each buyer.

46. The centrally-accessible computer and communications node of claim 44, wherein the computer is programmed to communicate similar offerings from different sellers using similar terms and conditions to a buyer in response to the buyer's identification.

47. The centrally-accessible computer and communications node of claim 46, wherein the computer is programmed to communicate the similar offerings using similar terms in response to the sellers selecting offering parameters indicating that the buyer should receive similar terms and conditions for the similar offerings from each of the sellers.

48. The centrally-accessible computer and communications node of claim 41, further comprising:

a data storage arrangement configured and arranged to store data for at least one user at one of the terminals, wherein the computer is further configured and arranged to communicate the stored information with the terminals via the communications port.

49. The centrally-accessible computer and communications node of claim 48, wherein the computer is programmed to restrict access to the stored data based upon a set of access characteristics defined at least by said at least one user owning the data.

50. The centrally-accessible computer and communications node of claim 41, wherein at least one buyer and at least one seller use different product identification codes for the same product and wherein the computer is programmed to match the product identification code of the at least one buyer with a product identification code of the at least one seller.

51. The centrally-accessible computer and communications node of claim 41, wherein the computer is programmed to store and update invoice information for at least one of the users in response to a transaction.

52. The centrally-accessible computer and communications node of claim 41, wherein the computer is programmed to store and update invoice information in response to at least one of: an order from a buyer, receipt of an order by a

seller, shipment by a seller, receipt by a buyer, rejection by a buyer and payment from a buyer.

53. The centrally-accessible computer and communications node of claim 51, wherein the computer is programmed to automatically effect payment to the seller for the transaction.

54. The centrally-accessible computer and communications node of claim 53, wherein the computer is programmed to invoice the buyer for the transaction.

55. The centrally-accessible computer and communications node of claim 53, wherein the computer is programmed to automatically effect payment to the seller from a third party credit source authorized to pay the seller on behalf of the buyer.

56. The centrally-accessible computer and communications node of claim 41, wherein the computer is programmed to suspend an offering in response to a user input changing terms of the offering.

57. The centrally-accessible computer and communications node of claim 41, wherein the computer includes a plurality of computers.

58. An automated pricing system for use by a buyer and seller who provide business rules, the automated pricing system comprising:

means for providing business rules for pricing a transaction to be implemented by the buyer and seller; and

means for receiving and using the business rules to derive a specific term for the transaction, the transaction having a price that is set as a function of the specific term.

59. A method for automated pricing of transactions between a buyer and seller who provide business rules, the method comprising:

providing business rules for pricing a transaction to be implemented by the buyer and seller; and

receiving and using the business rules to derive a specific term for the transaction, the transaction having a price that is set as a function of the specific term.

60. A method for transaction management in a system including a centrally accessible computer and communications node, the method comprising:

interfacing with the centrally-accessible computer and communications node via a seller terminal and displaying at least one seller offering at the seller terminal;

interfacing with the centrally-accessible computer and communications node via a buyer terminal and displaying at least one seller offering at the buyer terminal;

communicating data from the centrally-accessible computer and communications node to the buyer terminal and the seller terminal, and characterizing and modifying rules by which purchases of the at least one seller offering is made at the centrally-accessible computer and communications node; and

using the characterized and modified rules, deriving a specific term for a transaction to be implemented by a particular buyer and at least one particular seller, the transaction having a price that is set as a function of the specific term.

61. The method of claim 60, wherein characterizing and modifying rules includes programming the centrally-accessible computer and communications node to automatically characterize and modify rules by which purchases of the at least one seller offering is made.

62. The method of claim 60, wherein deriving a specific term includes deriving a price variance term, further comprising:

comparing an offer for a seller offering made by the particular buyer to determine compliance between the offer and a price of the seller offering within the price variance term; and

in response to determining that the offer received complies with the contract terms, setting the price for a transaction between the buyer and the seller.

63. The method of claim 60, wherein deriving a specific term for a transaction further comprises:

receiving a request from a buyer for a product having a first product identification;

matching the first product identification to at least one other product identification for the same product from at least one seller, the product identifications being different; and

deriving a price term for the first product as a function of the matching.

64. The method of claim 60, wherein characterizing and modifying rules by which purchases of the at least one seller offering is made includes assigning financial credit to at least one buyer and wherein deriving a specific term for a transaction includes using the financial credit to approve business transactions for the at least one buyer.

* * * * *

Exhibit B

SHIPMENT TRANSACTION SYSTEM AND AN ARRANGEMENT THEREOFRelated Patent Documents

5 The instant application is a continuation-in-part of U.S. Patent Application Serial No. 60/124,124 filed on March 12, 1999 entitled "Shipment Transaction System And An Arrangement Thereof", which is a continuation-in-part of U. S. Patent Application Serial No. 08/748,243, filed November 4, 1996, with the same title (USBA.02PA), both of which are incorporated herein by reference. The instant application is also related to U.S. Patent Application Serial No. 09/259,657, filed February 26, 1999, entitled "Shipment Transaction System And Method" (USBA.02C1), and related to U. S. Patent Application Serial No. 09/310,711, filed May 12, 1999, with the same title, both of which are continuations of U.S. Patent Application Serial No. 08/748,243 and are incorporated herein by reference.

Field of the Invention

20 The present invention relates to a computer processing system for shipment transactions involving a shipper and a carrier or a vendor and service providers where the transaction involves services.

Background of the Invention

25 Processing shipment transactions between a shipper and a carrier has been a manually intensive effort and has experienced little change. Generally, the shipment transaction process involves a goods transport path and a payment process path. The goods transport path typically starts when a carrier picks up the goods at the shipper's warehouse dock. The carrier receives a copy of a transaction document, sometimes

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referred to as a bill of lading (BOL), from the shipper. This type of transaction document includes information associated with the shipment transaction that is used by the shipper and carrier to track the shipment of goods. The carrier transports the goods to the receiver where the receiver signs a copy of the BOL to verify receipt of the goods.

- 5 After the carrier has delivered the goods to the receiver, the carrier also submits the receiver's signed copy of the BOL to the carrier's headquarters.

- At this point, records are generated that contain information about requested pick-up and delivery times, origin and destination, and type of load. The first problem in the process can occur when the carrier arrives to pick up the load. If the shipment is
- 10 not ready or there are delays at the loading dock, accessorial charges may be imposed by the carrier. Because they are not part of the original BOL, the shipper may dispute these charges later, and this can cause payment delays down the line. Back at the loading dock, a second problem is created when manual changes are made on the BOL. Unfortunately, these changes rarely get recorded in the shipper's permanent electronic
- 15 records causing a difference between the shipper's and the carrier's paperwork for the same load.

- Now on the road, the driver needs to send the paperwork back to headquarters. Because the primary job of the driver is to get the shipment to its destination in a timely manner, paperwork can sometimes be delayed, and it may be days before the carrier
- 20 headquarters receives a copy of the BOL.

The driver reaches the destination and delivers the shipment. At the point of delivery, the driver is supposed to provide notification of delivery. Again, this may or may not happen. When it does not, vital information is delayed or missing in the supply chain.

- 25 When the original and delivery copies of the BOL finally reach the clerk at the carrier's offices, the clerk sends out an invoice for the original shipment. A clerk at the shipper's office receives the invoice, often amid a pile of invoices for many carriers, and attempts to match the invoice with a copy of the original BOL. If a billing error is discovered, the clerk might send a check for a partial payment or simply hold the entire
- 30 payment until the corrected invoice is provided. The carrier clerk receives this check

and must then track down the original BOL and delivery copy to know why the check is for less than the total amount due. It is only after communicating with the shipper directly that the carrier finds out a mistake was made in the original paperwork. The carrier sends the shipper an amendment to the original invoice, and the shipping clerk must then organize and file all the paperwork together.

The payment process path starts when the carrier picks up the goods from the shipper. The carrier sends a copy of the BOL to the carrier's headquarters for processing. The carrier headquarters rates the BOL. Rating involves determining the shipment cost that takes into the account various shipment parameters such as the size, weight, type of material, and destination of the shipment. The carrier creates an invoice, sets up an accounts receivable, and sends the invoice to the shipper's accounts payable department. The shipper, either internally or via a third party, audits the invoice to ensure the final cost is proper.

One of the more burdensome aspects of the traditional process involves reaching agreement as to the final cost. If there is a dispute as to final cost, the shipper and carrier begin a burdensome and sometimes lengthy negotiation process in an attempt to settle the dispute. If the dispute is resolved, the shipper sets up an accounts payable for the transaction. The shipper will then send payment to the carrier and clear the accounts payable. The traditional process for paying the carrier and clearing the accounts payable involves several manually intensive steps. Upon receipt of payment, the carrier clears the accounts receivable. The traditional process for clearing an accounts receivable includes the carrier manually inputting final payment information into the accounts receivable system.

The traditional approach can lead to many disadvantages for a transaction between one shipper and one carrier. Typically, however, there are multiple carriers and shippers involved in multiple transactions, which makes the situation more complex, and that much more slow and inefficient. The process is manually intensive in that it relies on the hard copy of the BOL for proof of delivery and payment, resulting in a series of repetitive and time-consuming steps. Also, each BOL is often rated multiple times by multiple parties creating excessive redundancy.

Traditional shipment transaction systems are also highly susceptible to billing errors and fraud. For example, there is no connection between the delivery of goods and when the shipper is billed for delivery. This may result in double billing, no billing at all, or over-billing the shipper for freight delivery charges. Also, auditing error may occur which results in incorrect billing or payment. In addition, the carrier waits a disproportionately long time for payment while the invoice is being audited and/or disputed. For example, traditionally, a delivery takes about five days whereas payment takes about thirty days. This unnecessary delay adversely affects the carrier's working capital resources.

Additional costs arise as a result of the existing inefficiencies. Many of the costs are individually small, but very large in the aggregate. For example, the carrier incurs administrative costs including: the cost to create and deliver the initial invoice, costs of resolving billing disputes, costs of providing a signed copy of the BOL to the shipper, and costs of posting accounts receivable. The shipper incurs similar administrative costs.

Another disadvantage of traditional shipment transaction systems is that they have a tendency to strain relationships. Because carriers and shippers do not always have an effective way to communicate about the shipment, business partnerships can be strained when there are disputes. Continuous inaccuracies in either the shipment or invoice process create unnecessary tension along the entire supply chain for both shippers and carriers.

An additional disadvantage involves the inability to obtain immediate information regarding a shipment. Since the process is largely conducted manually, it is very difficult to track a shipment. To learn of the status of shipment or payment, there are various manual steps involved. For example, if the shipper wants to know if the carrier delivered the goods and if the payment has been made, the shipper must call the carrier and the appropriate financial institution.

There have been numerous attempts to improve the existing shipment and payment process. Some improvements have been made to each separate step of completing a shipment transaction, but the entire method remains relatively unchanged.

For example, freight agents are used by shippers to schedule shipments and to process the invoice from the carrier. Also, third party service providers have taken over the role of managing the shipper's accounts payable department.

- Another attempt to improve this burdensome transaction process involves the
- 5 use of the Internet. Carriers have offered Internet access to their shipment information. Shippers access the carrier's Internet address and find out the immediate status of the shipment. A disadvantage of this system arises when, as in many applications, the shipper is using multiple carriers. In this typical situation, the shipper separately accesses the address of each carrier in order to find out the status of each shipment.
- 10 This is unduly time-consuming.

- Another disadvantage of traditional systems is that the shipper's reference number and the carrier's reference number are not compatible. The carrier maintains the shipment data, so the shipper accesses the data using the carrier's reference number rather than the shipper's reference number. The shipper and carrier track each shipment
- 15 using multiple reference numbers.

These various attempts to improve the overall process have fallen short of providing a convenient and cost effective system to process a shipment transaction.

Summary of the Invention

- 20 The present invention is directed to a shipment transaction system for processing transaction information related to goods shipped from a shipper by a carrier. According to one example implementation of the present invention, the system includes a processor arrangement that maintains shipper credit data for shippers and to process the transaction information in response to control data communicatively coupled between
- 25 the processor arrangement and users of at least one type. The processor arrangement is linked with various users via a communications channel, and is programmed to receive control data from the users, to verify that the received control data is from an authorized source, and to evaluate the shipper credit data and the control data. In response, the processor arrangement determines whether to generate data that authorizes payment to
- 30 the appropriate carrier(s).

According to another example implementation of the present invention, a shipment transaction system includes a processor arrangement programmed and configured to maintain shipper credit data of said one of a plurality of shippers, to process the transaction information in response to control data communicatively coupled between the processor arrangement and users of at least one type, and to automatically audit shipment transactions between shippers and carriers. The system further includes at least one communication channel communicatively linking the processor arrangement with the users of said at least one type, with the processor arrangement being further programmed to receive control data from the users, to verify that the received control data is from an authorized source, and to evaluate the shipper credit data and the control data and, in response, to determine whether to generate authorization data that authorizes payment to one of a plurality of carriers.

More specific implementations of one or both of the above systems involving the following. The processor arrangement permits authorized ones of the shippers and authorized ones of the carriers to review audit discrepancies using a communication channel communicatively coupled with the processor arrangement. The processor arrangement permit authorized ones of the shippers to approve payment to selected ones of the carriers without adversely impacting credit data of the authorized shippers, and permits authorized ones of the carriers to delay shipment for selected ones of the shippers without adversely impacting credit data of the authorized carriers.

In yet another embodiment, a shipment transaction system includes a processor arrangement programmed and configured to maintain shipper credit data of a shipper, to process the transaction information in response to control data communicatively coupled between the processor arrangement and users of at least one type, and to maintain a database of shippers and carriers, the database having a main parameter set for validating ones of the shippers and carriers that are qualified as users thereof and having respective data sets for the validated shippers and carriers indicating varying communication access levels for communicators of each respective validated shipper and carrier. At least one communication channel communicatively links the processor arrangement with the users of said at least one type, and the processor arrangement is

audits shipment transactions and reports thereon to at least one of the validated shippers and carriers according to one of the varying communication access levels for communicators of the validated shipper and/or carrier.

- Another more specific embodiment involve the above shipment transaction
- 5 system with the processor arrangement further programmed and configured to audit shipment transactions and report thereon to at least one of the validated shippers and carriers according to different communication access levels, each being defined based on data provided by a respective one of the validated shippers and carriers. Further, the processor arrangement can be configured and arranged to permit and block access to
- 10 shipment transaction information according to information stored in the database, and the database can include information defining payment authorization levels for communicators, wherein the processor arrangement permits approval for payment to carriers for shipment transactions according to the information defining payment authorization levels. As enhancements to this implementation, the information defining
- 15 payment authorization levels for communicators in the database is defined by a specified type of user, and the information defining payment authorization levels for communicators is downloaded into the database from the user at a remote site.

- According to one application, the present invention is directed to a transaction validation system for auditing transaction information related to services provided by
- 20 one of a plurality of vendors and processed by one of a plurality of service providers. The system comprises a central processor arrangement programmed and configured to maintain data relating to an authorized profile list criterion that includes information about authorized users empowered to authorize payment by the vendor, and programmed and configured to process the transaction information by determining
- 25 whether the transaction information satisfies the authorized profile list criterion, and using the authorized profile list criterion to generate information for auditing a transaction between one of a plurality of vendors and one of a plurality of service providers.

- According to another application, the present invention is directed to a transaction
- 30 validation system for auditing transaction information related to services provided by a

vendor and a plurality of subvendors and processed by one of a plurality of subvendor controlled service providers. The system comprises a central processor arrangement, coupled to vendor and subvendor, programmed and configured to maintain data relating to an authorized profile list criterion that includes information about authorized users
5 empowered to authorize payment by the vendor, and programmed and configured to process the transaction information by determining whether the transaction information satisfies the authorized profile list criterion, and using the authorized profile list criterion to generate information for auditing a transaction between the vendor and both of the plurality of subvendors and plurality of subvendor controlled service providers.

- 10 According to another application, the present invention is directed to a transaction validation system for auditing transaction information related to services provided by a vendor, the transaction information being generated by one of a plurality of service providers prior to processing by the vendor. The system comprises a central processor arrangement programmed and configured to maintain data relating to an
15 authorized profile list criterion that includes information about authorized users empowered to authorize payment by the vendor to service provider, and programmed and configured to process the transaction information by determining whether the transaction information satisfies the authorized profile list criterion, and using the authorized profile list criterion to generate information for auditing a transaction
20 between the vendor and one of a plurality of service providers.

Other aspects of the present invention are directed to methods for implementing the computer operations at a central control center, and to arrangements and methods for configuring and operating the coordination of the above-characterized shipment transaction system at the shipper's station and with respect to the carrier.

- 25 The above summary of the present invention is not intended to describe each illustrated embodiment, or every implementation, of the present invention. This is the purpose of the figures and of the detailed description that follows.

Brief Description of the Drawings

Other aspects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is a block diagram illustrating a specific embodiment that incorporates principles of the present invention;

5 FIG. 2 is a block diagram illustrating an example flowchart for programming the shipper processor 24 of FIG. 1 according to the present invention;

FIG. 2a is a block diagram illustrating an example flowchart for programming the BOL rating engine 30 of FIG. 1 according to the present invention;

10 FIG. 3 is a block diagram illustrating an example flowchart for programming the data processing device 34 of FIG. 1 according to the present invention;

FIG. 4 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 manipulating the transaction information according to the present invention;

15 FIG. 5 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 authorizing a transaction according to the present invention;

FIG. 6 is a block diagram illustrating an example flowchart for programming the VRU unit 48 according to the present invention;

20 FIG. 7 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 generating a deposit file according to the present invention;

FIG. 8 is a block diagram illustrating an example flowchart for programming the paying processor 54 of FIG. 1 according to the present invention;

25 FIG. 9 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 crediting a transaction according to the present invention;

FIGs. 10A-10C are flow diagrams depicting an example operation of implementing ship transaction using the data processing flow addressed herein, according another aspect of the present invention;

FIG. 11 illustrates a communication path from an architectural perspective in which an array of computers and data routers are used in an example implementation of a system and method, according another aspect of the present invention;

FIG. 12 is a block diagram illustrating another embodiment of the invention
5 directed to services that incorporates principles of the present invention;

FIG. 13 is a block diagram illustrating another embodiment directed to services and having a modified relationship between vendor and service provider; and;

FIG. 14 is a block diagram illustrating another embodiment having a modified relationship between a vendor, subvendors and service providers.

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While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed. On the
15 contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

Detailed Description

20 The present invention is generally applicable to a computer processing system for a shipment transaction involving a shipper and a carrier. The present invention has been found to be particularly advantageous for a system which efficiently automates the payment of a shipment transaction and efficiently provides access to shipment information.

25 The present invention is generally directed to a system that automates the shipment transaction process to thereby provide a convenient transaction protocol between the delivery, billing, and payment aspects of the transaction.

In one embodiment of the present invention, a computer arrangement includes a main CPU communicatively coupled via the Internet to provide around the clock access
30 of shipment transaction data to authorized shippers, carriers, operators of the main CPU

and, in more specific implementations, a separate financial institution and/or an auditor that is independent of the shippers, carriers, and CPU operators (and if applicable the separate financial institution). As is conventional with Internet communications, electronic notes can be included for supplemental communication with anyone in the shipment transaction chain. The main CPU maintains a database of all information relating to the shipments of the carriers and shippers, and the main CPU is used to analyze the shipments for auditing purposes, effect payments, to facilitate changes to the rating systems, and to facilitate resolution of audit discrepancies.

When a problem arises with a shipment, for example, the shipper (or the carrier if preferred) can change the rating via the Internet. Moreover, the shipper can instruct the main CPU to delay payment. Similarly, the carrier can inform the main CPU that a delivery of a shipment is being delayed due to its problems in receiving payments from the shipper.

By permitting the shipper access to analysis of the information database, the shipper can inquire of the main CPU data useful in assisting the shipper address issues, such as: which carrier has the best on-time delivery record, and which carrier has the most cost-effective service between two locations. Carriers can also use such data to addresses issues such as to identify the shipper that generates the most business in a target region. Further, all users of the system have the potential to access an abundance of historical data including, for example, approval history, and delivery and payment information.

As shown in FIG. 1, a shipper processor 24 initiates the shipment transaction by acting in conjunction with a BOL rating engine 30 to generate a rated BOL. The shipper processor sends the rated BOL to a data processing device 34 of a shipper access terminal 32. The data processing device 34 generates transaction information and sends the transaction information to a central processor 40. The central processor 40 identifies and centrally tracks the transaction information. A carrier processing device 46 receives proof of delivery information and sends this information to the central processor 40. The central processor 40 processes and stores all pertinent

implemented using a computer processing device such as a stand-alone personal computer, a personal computer connected to a network, or a conventional mainframe.

FIG. 2a is a block diagram illustrating an example flowchart for programming the BOL Rating Engine 30 of FIG. 1 according to the present invention. The BOL
5 rating engine receives 216 the shipment parameters and processes 218 the shipment parameters. The BOL Rating Engine 30 generates 220 a rated BOL. The BOL rating engine 30 is programmed to an agreed upon rate structure by the shipper 20 and carrier 22. As a result, the BOL rating engine 30 produces consistently rated BOL's. This has
10 the further advantage that the shipper 20 and the carrier 22 do not have to audit the engine often. Existing systems require frequent auditing of the results of the BOL rating engine. With no post audit adjustments, the payment to the carrier 22 is definite.

The BOL rating engine 30 sends 222 the rated BOL to the shipper processor 24. In a particular application, the BOL rating engine 30 is included in the shipper processor 24. The shipper processor 24 performs the rating function of the BOL rating engine 30
15 so that there is no need to send the shipment parameters to an external BOL rating engine. The shipment parameters are processed and a rated BOL is generated solely by the shipper processor 24.

Another advantage associated with the process in which a rated BOL is produced is that only one BOL rating engine 30 is needed for the entire shipment
20 transaction system. This saves duplicate efforts by the carrier 22 and ensures exact payment. A significant benefit of this illustrated embodiment of FIG. 1 is that the cost depicted on the BOL is the final cost of shipment. Therefore, the shipper 20 and carrier 22 will immediately know the final cost of shipment before the goods are delivered. The BOL rating engine 30 removes ambiguity from the shipment transaction payment
25 process which significantly offsets time-consuming payment disputes.

The shipper processor 24 receives 212 the rated BOL and sends 214 the rated BOL to a shipper access terminal 32 located at the shipper's premises. In an alternative embodiment, the BOL rating engine 30 is located off the shipper's premises so that the shipper processor 24 can access the BOL rating engine 30 on an as-needed basis. One

advantage is that one standardized BOL rating engine could be electronically linked to multiple shipper processors thereby reducing the cost to each individual shipper.

FIG. 3 is a block diagram illustrating an example flowchart for programming the data processing device 34 of FIG. 1 according to the present invention. The shipper access terminal 32 contains a data processing device 34 that receives 300 the rated BOL. The data processing device 34 validates 312 the rated BOL to ensure that the rated BOL contains data that is complete, error-free, and properly formatted. The data processing device 34 processes 312 the rated BOL and generates 316 a list of transaction information. The transaction information includes the information as seen in table 1 below. The columns in Table 1 represent the following: Data Element is the data that will reside in that particular element location, Length is the length of the data element; type is the type of data element which is either numeric or alpha-numeric, and Description simply describes the function of the data element if necessary.

Table 1 - Transaction Information

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>DESCRIPTION</i>
Shipper ID	10	N	Record ID
Dock ID	3	N	Record ID
Bill of Lading #	15	AN	Record ID
Ship Date	8	N	Record ID, reporting
SCAC	4	A	Standard Carrier Alpha Code, a national standardized carrier identification code.
Carrier Vendor Number	10	N	Alternate index, allows Shipper 20 to specify its vendor number for a given carrier 22
Customer Number	10	N	Alternate index, allows shipper 20 to specify it's customer number for a given receiver
Customer PO #	15	AN	Alternate index, reporting
Shipper Order #	15	AN	Alternate index
Vendor Order Number	15	AN	Reporting, alternate locator, carrier 22 PO associated with shipment
Shipper Name	35	AN	
Shipper Contact Person	20	A	

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>DESCRIPTION</i>
Shipper Phone #	15	AN	
Origin Designator	10	AN	
City	20	AN	
State	2	A	
ZIP Code	9	N	
Division Code	2	AN	
Reference B/L #1	15	AN	Consolidated Shipments
Reference B/L #2	15	AN	Consolidated Shipments
Reference B/L #3	15	AN	Consolidated Shipments
Bill of Lading Type	1	AN	Reporting
Shipment Mode	3	AN	Less than Truck Load(LTL), Truck Load (TL), Rail (RAI), AIR
Inbound, Outbound Flag	1	AN	
Prepaid, Collect Flag	1	AN	
COD Flag	1	N	
COD Amount	9.2	N	
Shipment Value	9.2	N	
Driver Name	20	AN	
Trailer/Car #	15	AN	
Trailer/CarSeal#	15	AN	
Import, Export Flag	1	AN	
# Stops	2	N	
Stop Off Charges	7.2	N	
Rated Freight Charges	9.2	N	
Cube Dimensions	5	N	
Shipment "as weight"	7.2	N	
Accessorial Charges	7.2	N	
Total Freight Chgs	9.2	N	
Destination Name	25	AN	
Destination City	20	AN	
Destination State	2	A	
Destination Zip Code	9	N	
Destination Area Code	3	N	
Destination Prefix	3	N	
Destination Phone	4	N	
Mileage	5	N	

The data processing device 34 sends the transaction information to a central processor 40. In one embodiment, the data processing device 34 is implemented using a

conventional personal computer programmed to operate under the control of an operating system stored in the memory. These types of computer arrangements are not presently programmed to conventionally interface with a central processing center and a processing device located at a shipper's premises. One advantage of interfacing the

5 central processor 40 with shipper access terminal 32 is that the shipper access terminal 32 can control the quantity, quality, and timing of information that is transmitted between the shipper processor 24 and the central processor 40. The access terminal 32 can also control the communication sessions between the shipper processor 24 and the central processor 40. The shipper access terminal 32 is designed so that the shipper 20

10 may directly access the transaction information. The shipper 20 will not be allowed to make changes to the transaction information, but is able to add additional information. This ensures the integrity of the transaction information. An additional advantage of the access terminal 32 is that the data processing device 34 can receive real-time information from the shipper processor 24 regarding the shipment transaction.

15 In an alternative embodiment, the shipper access terminal 32 is linked to a magnetic stripe card reader. The card reader accepts a card and transmits the data contained therein to the data processing device 34 of the shipper access terminal 32. The magnetic stripe card reader accepts an identification card from a user of the system. The identification card contains relevant user information. In an alternative application,

20 the access terminal 32 is linked to a bar code reader that is designed to receive information from a bar code and input the bar code information into the data processing device 34. The bar code is printed on the BOL or on a carrier identification card.

The data processing device 34 sends 318 the transaction information to the central processor 40. The design of the central processor 40 is dictated by the desired

25 speed, the number of users, and the amount of data to be processed.

FIG. 4 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 to manipulate the transaction information according to the present invention. The central processor 40 receives 402 the transaction information and performs 404 an integrity check on the incoming information to ensure that the

30 information is correctly formatted and contains no errors. If the integrity check is

unsuccessful, the transaction information is stored in a suspense file in a data storage unit 42. Once the error is corrected, the corrected transaction may be sent into the normal process flow. If the integrity check is successful, the central processor 40 retrieves 406 authorized user profile lists from the data storage unit 42.

- 5 The data storage unit 42 is essentially a memory unit that stores information relevant to the shipping transaction. The design of the data storage unit 42 is dictated by the amount of data needed to be stored.

- 10 The authorized user profile lists represent the users and combination of users that are authorized to use the system. Authorized user profile lists include a shipper profile list, a carrier profile list, a carrier/shipper profile list, and a shipper access terminal profile list. The profile lists provide the cross-reference between the payment ID (assigned by central processor 40), an account ID (assigned by an issuing processor 45), and a merchant number (assigned by a paying processor 54).

- 15 An authorized shipper profile list identifies information regarding the shipper and the shipment as can be seen below in Table 2.

Table 2 - Shipper Profile

DATA ELEMENT	WIDT H	TYPE	DESCRIPTION
Shipper ID	10	N	Uniquely identifies a legal entity using a single BOL system, assigned by the CP 40.
Account ID	16	N	Account # assigned to shipper 20 by issuing processor 54.
Shipper Name	32	A/N	
Shipper Address 1	32	A/N	Headquarters Address
Shipper Address 2	32	A/N	
Shipper City	28	A/N	
Shipper State/Province	3	A/N	
Shipper Country	3	A/N	
Shipper Contact	32	A/N	
Shipper Phone	10	N	
Open Date	8	N	Supplied by CP 40 when record is built. YYYYMMDD format

DATA ELEMENT	WIDTH H	TYPE	DESCRIPTION
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by CP 40 - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by system when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status, valid values are OPEN, CLSD, HOLD
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40. HHMM format
Last Update User	8	A/N	Automatically pulled from user profile by CP 40.

- An authorized carrier profile list identifies information regarding the carrier 22 and the shipment transaction as can be seen below in table 3. Included in the carrier profile is a merchant number that a paying processor 54 assigns to the carrier 22. Each carrier 22 can have multiple merchant numbers if desired. This allows carrier flexibility to assign different merchant numbers for different regions or different shippers. This flexibility facilitates the carrier's business management process. It is not known of existing systems that provide such flexibility.

Table 3 - Carrier Profile

COLUMN NAME	DATA WIDTH H	DATA TYPE	DESCRIPTION
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COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
SCAC	4	A/N	4 character code that uniquely identifies a Carrier 22.
Merchant Number	10	N	Paying processor 54 assigns to each carrier.
Carrier 22 Name	32	A/N	DBA name of Carrier HQ
Carrier Address 1	32	A/N	
Carrier Address 2	32	A/N	
Carrier City	28	A/N	
Carrier State/Province	3	A/N	
Carrier Country	3	A/N	
Carrier Contact	32	A/N	Name of primary contact at Carrier HQ
Carrier Phone	10	N	Phone number of primary contact at Carrier HQ
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system on this Carrier 22 - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by system every time a BOL record is processed for this Carrier 22
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists by CP 40

An authorized shipper/carrier profile list identifies information regarding valid shipper carrier combinations as can be seen below in table 4.

Table 4 - Shipper/Carrier Profile

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Shipper ID	10	N	
Carrier SCAC	4	A/N	
Merchant Number	10	N	Assigned by Paying processor 54. If blank, use default value from carrier profile.
Proof of Delivery (POD)	1	A	"Y" for POD to be required, "N" for POD not required
Type of POD	4	A	Identifies in what manner the POD is to be received.
Auto close days	2	N	Number of days after which the transaction will close and be paid to the Carrier 22 regardless of whether or not POD has been posted.
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40

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COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Last update time	4	N	Automatically stamped by CP 40 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

- An authorized shipper access terminal profile identifies the shipper 20 as well as the shipping dock. A shipper has a separate shipper access terminal profile for each dock. The central processor 40 assigns a different dock ID for each dock. The information included in the access point profile is listed below in table 5.

Table 5 - Access Terminal Profile

COLUMN NAME	WIDT H	TYPE	DESCRIPTION
Shipper ID	10	N	Uniquely identifies a legal entity using a single BOL system
Dock ID	3	N	Uniquely identifies a particular physical dock location with a shipper ID.
Account ID	16	N	Issuing Processor 54 assigns. Defaults from shipper profile, can be overridden by shipper.
Dock Name	32	A/N	DBA name of dock originating BOL
Dock Address 1	32	A/N	Street address of dock originating BOL
Dock Address 2	32	A/N	
Dock City	28	A/N	
Dock State/Province	3	A/N	
Dock Country	3	A/N	
Dock Contact	32	A/N	
Dock Phone	10	N	To be used for reporting against completion transaction
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system - YYYYMMDD format

COLUMN NAME	WIDT H	TYPE	DESCRIPTION
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Automatically updated by CP 40 on the effective date if effective date was pre-entered or as part of the on-line transaction if the effective date is changed to today. Valid values are OPEN, CLSD, HOLD
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

- The central processor 40 authenticates 408 the transaction information by comparing elements of transaction information with the authorized user profile lists. The elements of the transaction information used for authentication include; the identity
- 5 of the shipper, the identity of the shipper's dock, and the identity of the carrier. If the authentication is successful, the central processor 40 assigns 410 a payment identification number (payment ID) to the transaction information and stores 412 the transaction information in the data storage unit 42. The payment ID is a unique key for the transaction record which the central processor 40 uses to centrally track the
- 10 transaction. The payment ID includes specific information regarding the shipment transaction including; the shipper identification number, the BOL number, and the shipping date. The advantage of the payment ID is that it allows the central processor 40 to more efficiently and accurately track the different actions occurring within the system. The payment ID can be referenced to the specific identification numbers that
- 15 any of the users may assign. The payment ID is now considered "open". Open is a

term used to signify that the shipper 20 has transferred the goods to the carrier 22, and the carrier 22 has not yet completed the shipment.

If the authentication is unsuccessful, the central processor 40 stores 414 the invalid transaction in a suspense file in the data storage unit 42. When an invalid
5 transaction is stored, a notification is sent which indicates that an error has occurred and is in need of further review and correction. Once the error is corrected, the corrected transaction may be sent into the normal process path.

The central processor 40 sends the authenticated transaction information, including the shipper identity and the cost of the shipment, to an issuing institution 44
10 for authorization. FIG. 5 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 to perform an authorization check according to the present invention. The issuing institution 44 contains an issuing processor 45. The issuing processor 45 maintains accounts for one or more shippers. Each account includes information regarding credit limits, open authorizations, unpaid
15 balances, and the resulting open-to-buy. Open-to-buy measures the unused credit limit.

The issuing processor 45 receives 502 the authorization request from the central processor 40. The issuing processor 45 compares 504 the authorization request to the open-to-buy of the shipper and attempts to approve 506 the request. If the shipper 20 has enough open to buy, the issuing processor 45 approves the authorization request.
20 The issuing processor 45 stores 507 the approved authorization request and decreases 508 the open-to-buy. The issuing processor 45 sends 510 the authorization approval to the central processor 40 and the central processor 40 updates the records in the data storage unit 42. If the authorization is successful, the payment ID is considered "authorized". If the authorization is unsuccessful, the issuing processor 45 sends 512 an
25 authorization decline to the central processor 40.

After the goods are delivered to a receiver, the payment ID must be "closed". Closed refers to providing proof of delivery (POD) of the shipment in order to complete the shipment transaction. POD includes the identity of the shipper, the BOL number, the carrier invoice number, the delivery date and time, the person acknowledging

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receipt, and the condition of the shipment. A carrier processor 46 receives the POD and sends the information to the central processor 40.

In one embodiment, the carrier processor 46 is a conventional bar code reader. The bar code reader is used by the carrier 22 to read a bar code on the shipment. The
15 bar code reader sends the POD information to the central processor 40.

In an alternative embodiment, the carrier processor 46 is a voice response unit 48 (VRU). FIG. 6 is a block diagram illustrating an example flowchart for programming the VRU 48 according one embodiment of the present invention. In this embodiment, the central processor 40 extracts an open payment ID from the data
10 storage unit 42. The central processor 40 sends information relating to the open payment ID, including the BOL number and the shipper ID, to the VRU 48. The VRU 48 receives 602 the open BOL number.

A standard touch-tone telephone is used to access the VRU 48. While the location of the telephone is not critical, locating it at the receiver's premises promotes
15 efficiency, convenience, and accuracy. It is convenient and efficient because the carrier 22 can call the VRU 48 at the exact time the shipment is delivered. It is accurate in that the phone number of the receiver, automatically captured by the VRU 48, will identify where and when the call was made.

The VRU 48 prompts 604 the carrier 22 for the shipper ID. The VRU 48
20 receives 606 the shipper ID and attempts to match 608 the entered shipper ID with an open shipper ID. If the shipper ID is matched, the VRU 48 prompts 610 the carrier 22 for the BOL number. The VRU 48 receives 612 the entered BOL number and attempts to match 614 the combination of the entered BOL number and shipper ID with an open BOL number and Shipper ID. If the BOL number and shipper ID combination is
25 matched, the VRU 48 prompts 616 the carrier 22 for condition of shipment. The VRU 48 receives 618 the condition of shipment and sends 620 the POD information which includes BOL number, the shipper ID, and the condition of the shipment to the central processor 40.

If the VRU 48 cannot match either the shipper ID and the BOL number, the VRU 48 prompts 622 the carrier 22 to either try again or routes 624 the carrier 22 to customer service where the problem can be resolved.

FIG. 7 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 generating a deposit file according to the present invention. The central processor 40 receives 702 the matched BOL number, the shipper ID, and the condition of the shipment from the carrier processor 46. The central processor 40 validates 704 the incoming data to ensure that it is error free and properly formatted. The central processor 40 extracts 706 the open payment ID from the data storage unit 42. The central processor 40 authenticates 708 the matched BOL number with an open payment ID. If the BOL number and payment ID are authenticated, the payment ID is considered complete. The central processor stores 710 the completed transaction and corresponding payment ID in the data storage unit 42. If authentication is unsuccessful, the central processor 40 stores 712 the information in a suspense file where the problem can be manually resolved as discussed above.

A payment ID can be completed by the above manner or a payment ID can expire. A payment ID expires when a pre-programmed number of days have elapsed since the shipping date. This preprogrammed number of days is defined as auto close days in the data storage unit 42. A particular transaction is identified by the shipper and carrier to expire on a specific date, the effective date, whether or not the proof of delivery is received. On the effective date, the payment process begins. This has the advantage that the carrier 22 will be paid for every shipment carried. Payment to the carrier 22 is expedited if proof of delivery is received.

The central processor 40 periodically extracts 714 from the data storage unit 42 the transactions that are listed as "completed and authorized" or "expired and authorized." The central processor 40 sorts and batches 716 the transactions by the merchant number. The central processor 40 generates 718 a deposit file 50 for those authorized transactions that are completed or expired and which have not been previously extracted. In a particular application, one deposit file 50 is created for all transactions completed by each carrier. The deposit file 50 is formatted so that it is

compatible with the paying processor's 54 format. The deposit file 50 includes the payment ID, the account ID, the carrier identity, the BOL number, the destination city, the destination state, the destination zip code, and the cost of shipment. The cost of the shipment represents the amount that is owed by the shipper 20 and payable to the carrier

5 22.

The central processor 40 performs 720 a general integrity check on the deposit file 50. The integrity check includes: ensuring that the payment ID has been authorized, ensuring that the BOL is completed or expired, and ensuring that payment has not yet occurred for the particular payment ID.

- 10 If the central processor 40 validates the deposit file 50, the processor 40 sends 722 the deposit file 50 to a paying processor 54 of a paying institution 52. In a particular application, the deposit file 50 is conventionally sent via a telephone transmission. The paying institution has a paying processor 54 which processes financial information and maintains financial accounts for the carrier 22. The paying processor 54 is generally
- 15 designed to process financial information. The paying institution 52 maintains one or more accounts for each carrier 22.

FIG. 8 is a block diagram illustrating an example flowchart for programming the paying processor 54 of FIG. 1 according to the present invention. The paying processor 54 receives 802 the deposit file 50 and sends 804 a confirmation message to the central

20 processor 40 that the deposit file 50 was received.

The paying processor 54 validates 806 the incoming deposit file and generates 808 payment to the carrier 22. The paying processor 54 tenders 810 payment to the carrier 24 and sends 812 this information to the central processor 40 so that the central processor 40 can update the data storage unit 42. In a particular application, the paying

25 processor 54 tenders payment by directly paying the carrier 22. In an alternative embodiment, the paying processor 54 sends the payment to the carrier's bank conventionally through the Federal Reserve's Automated Clearing House.

One advantage associated with the generation of payments to the carrier 22 is that the carrier 22 is paid relatively soon after the carrier 22 has completed the shipment.

30 This provides the carrier 22 with improved cash flow and reduces the carrier's working

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capital requirements. Another advantage is that the carrier 22 does not have to audit or rate the payment that saves time and money. This streamlined approach reduces the carrier's administrative costs associated with processing a payment.

The paying processor 54 generates 814 a systems bill for the carrier 22. This
5 systems bill represents the amount the carrier 22 owes for the service provided by the system of the present invention. The paying processor 54 sends 816 the systems bill to the carrier 22. The paying processor 54 sends 818 the systems bill information to the central processor 40 where the information is stored in the data storage unit 42. The paying processor 54 delivers 820 the paid shipment transactions to the issuing processor
10 45 of the issuing institution 44.

The issuing institution 44 maintains one or more accounts for the shipper 20 and extends and manages credit to the shipper 20. The issuing processor 45 maintains the amount paid to each carrier 22 on behalf of each shipper 20. FIG. 9 is a block diagram
illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 to
15 credit a transaction according to the present invention. The issuing processor 45 receives 902 the paid transactions from the paying processor 54. The issuing processor 45 retrieves 904 the approved authorization list and compares 906 the authorization list with the paid transactions. The issuing processor 45 attempts to match 908 the paid transactions with an authorized transaction. If a match is made, no change is made to
20 the open to buy. If a match is not made, the issuing processor 45 decreases 910 the open to buy.

The issuing processor 45 posts 912 the cost of shipment for all paid transactions to the shipper's account thereby increasing the balance due from the shipper 20. The issuing processor 45 periodically bills 914 the shipper 20 for the posted financial
25 transactions paid on behalf of the shipper 20 and periodically receives 916 payment from the shipper 20. When the issuing processor 45 receives payment, the processor 45 posts payment to the shipper's account and increases 918 the open-to-buy.

The issuing processor 45 communicates with the central processor 40 and sends information regarding shipper 20 payment and billing. The central processor 40 updates
30 the data storage unit 42 with this information.

In an alternative embodiment, the paying institution 52 is incorporated into the issuing institution 44. This results in one processor performing the functions of the issuing processor 45 and the paying processor 54.

- A further advantage of the computer processing system for a shipment transaction involving a shipper and a carrier is that the data storage unit 42 and central processor 40 interface to store and provide value-laden information to the users of the system. The central processor 40 provides a security check for all information entering and leaving the data storage unit 42. The central processor edits incoming files and provides on-line alarms for duplicate files, stale dated files, out of balance files, and files with corrupt data. The central processor 40 maintains a suspense file in the data storage unit 42 where incoming invalid transaction information and unmatched proof of delivery information are stored. With a centrally located suspense file, the problem resolution process is more efficient.

- The central processor 40 maintains data views and tables and stores this information in the data storage unit 42. The central processor 40 maintains a BOL Header Table for each BOL number that generally includes a summary of all information relating to that shipment transaction. This information is shown in the table 6 below. The source of the particular data element is indicated in column four of table 6.

Table 6 BOL Header Data Elements

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>Source</i>	<i>Purpose</i>
Shipper ID	10	N	CP 40	Record ID
Dock ID	3	N	CP 40	Record ID
Account ID	16	N	CP 40	Record ID; reporting
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID, reporting
SCAC	4	A	Shipper	Alternate index, identifies Carrier
Merchant #	10	N	CP 40	Alternate index, for CP 40 usage
Vendor #	10	N	Shipper	Alternate index, allows Shipper to specify its vendor number for a given carrier

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>Source</i>	<i>Purpose</i>
Customer Number	10	N	Shipper	Alternate index, allows Shipper to specify it's customer number for a given receiver
Customer PO #	15	AN	Shipper	Alternate index, reporting
Shipper Order #	15	AN	Shipper	Alternative Index
Vendor Order Number	15	AN	Shipper	Reporting, alternate locator
Shipper Name	35	AN	Shipper	Reporting
Shipper Contact Person	20	A	Shipper	Claims
Shipper Phone #	15	AN	Shipper	Claims
Origin Designator	10	AN	Shipper	Reporting
City	20	AN	Shipper	Reporting
State	2	A	Shipper	Reporting
ZIP Code	9	N	Shipper	Reporting
Division Code	2	AN	Shipper	Reporting
Reference B/L #1	15	AN	Shipper	Consolidated Shipments
Reference B/L #2	15	AN	Shipper	Consolidated Shipments
Reference B/L #3	15	AN	Shipper	Consolidated Shipments
Bill of Lading Type	1	AN	Shipper	Reporting
Shipment Mode	3	AN	Shipper	LTL, TL, RAI, AIR.
Inbound, Outbound Flag	1	AN	Shipper	Reporting
Prepaid, Collect Flag	1	AN	Shipper	Reporting
COD Flag	1	AN	Shipper	Reporting
COD Amount	9.2	AN	Shipper	Reporting
Shipment Value	9.2	AN	Shipper	Reporting; claims
Driver Name	20	AN	Shipper	Reporting; Claims
Trailer/Car #	15	AN	Shipper	Reporting; claims
Trailer/Car Seal #	15	AN	Shipper	Reporting; claims
Import, Export Flag	1	AN	Shipper	Reporting
# Stops	2	N	Shipper	Reporting
Stop Off Charges	7.2	AN	Shipper	Reporting
Rated Freight Charges	9.2	AN	Shipper	Payment, reporting
Cube Dimensions	5	N	Shipper	Reporting
Shipment "as weight"	7.2	N	Shipper	Reporting; claims
Accessorial Charges	7.2	AN	Shipper	Payment, reporting
Total Freight Chgs	9.2	AN	Shipper	Payment, reporting

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>Source</i>	<i>Purpose</i>
Destination Name	25	AN	Shipper	Reporting
Destination City	20	AN	Shipper	Reporting
Destination State	2	A	Shipper	Reporting
Destination Zip Code	9	N	Shipper	Reporting
Destination Area Code	3	N	Shipper	Reporting, verification
Destination Prefix	3	N	Shipper	Reporting, verification
Destination Phone	4	N	Shipper	Reporting, verification
Mileage	5	N	Shipper	Reporting
Voucher/Check #	12	AN	CP 40	Inquiry
Ship Date	8	N	Shipper	Life cycle tracking
CP 40 Receipt Date	8	N	CP 40	Life cycle tracking
Storage Insert Date	8	N	CP 40	Life cycle tracking
VRU Extract Date	8	N	CP 40	Life cycle tracking
Authorization Date	8	N	CP 40	Life cycle tracking
Authorization #	6	AN	Issuing Proc.45	From authorization response feed
Auth Response Code	2	AN	Issuing Proc.45	From authorization response feed
Delivery Date	8	N	CP 40	Life cycle tracking
Completion Date	8	N	CP 40	Life cycle tracking
Deposit Extract Date	8	N	CP 40	Life cycle tracking
Settlement Date	8	N	Paying Proc.54	From Settlement record
Settlement DDA #	12	AN	Paying Proc.54	From Settlement record
Shipper Billing Date	8	N	Issuing Proc.45	From statement billing file feed for life cycle tracking
Delivery Area Code	3	N	Carrier Proc	POD tracking, claims
Delivery Prefix	3	N	Carrier Proc.46	POD tracking, claims
Delivery Phone	4	N	Carrier Proc.46	POD tracking, claims
Receiver Name	20	A	Carrier	POD tracking, claims
Receipt Condition	1	A	Carrier Proc.46	Quality of service tracking, claims
POD ID	15	AN	Carrier Proc.46	Provided by carrier 22(such as FedEx, UPS) who has accepted POD system

In addition, the central processor 40 maintains BOL line item details from the transaction information. The BOL line item details generally consist of information relating to the goods of the shipment as can be seen below in table 7.

Table 7 - BOL Line Item Detail Data Elements

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>Source</i>	<i>Purpose</i>
Shipper ID	16	N	CP 40	Record ID
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID
Product Description	28	AN	Shipper	Reporting, claims
Product ID	8	AN	Shipper	Reporting, claims
Product Value	7.2	\$N	Shipper	Claims
Haz Mat Flag	1	AN	Shipper	Reporting, claims
Item Weight	7.2	N	Shipper	Reporting, claims
Total Pcs	5	N	Shipper	Reporting, claims
Item "as weight"	7.2	N	Shipper	Reporting
Unit of Measure	4	AN	Shipper	Reporting, claims
Accounting Code	25	AN	Shipper	Reporting
Item Freight [†] Charges	7.2	N	Shipper	Reporting, claims

In the example system application of FIG. 1, the carrier 22 will not have access to the BOL line item product value, but will be able to see the line item freight charges.

A further advantage of the shipment transaction system of FIG. 1 is that the system allows multiple users to obtain information about the same shipment from the same source. Since the system supplies information from the same source, all users will obtain the same information at the same time. This advantage of timeliness does not exist in current systems. Existing systems are not known to provide a single source of up-to-date information regarding multiple shipment transactions.

In an alternative embodiment, multiple users access the shipment information via the central processor 40. The shipment information is stored in the data storage unit 42. The central processor 40 is electronically linked to a multitude of user stations. The link between the central processor 40 and a user station allows for conventional two-

way communication. The user station is a standard personal computer comprising of a video display, a keyboard, a central processor, and a modem link. A user initiates a request for information by accessing the central processor 40 using the personal computer. When the user is logged into the central processor 40, the central processor 40 prompts the user to enter a password.

The central processor 40 provides a security check on all information requests. The security check is programmed such that the shipper 20 and carrier 22 are restricted to accessing only their own data. In addition, the processor 40 is programmed such that unauthorized parties are denied access.

10 The central processor 40 receives informational requests from the user. The central processor 40 accesses the data storage unit 42 and extracts the requested information and transmits the information to the user's station. The advantage of such an information service is clear. Users will be able to obtain current information regarding a shipment transaction.

15 In a particular application, once a user has access to the system, the central processor 40 will prompt the user for a range of dates of interest including the current day, the previous day, monthly total, yearly total, or a specified date range. The central processor 40 displays the transaction information, freight amounts, shipment costs, total weight, and cost per pound for various types of transactions including: transactions
20 added to the data storage unit, transactions with proof of delivery, transactions that have expired, transactions in the suspense file, transactions paid to carrier, transactions in transit, transactions declined, and transactions approved.

The central processor 40 allows user's to request a particular transaction by entering any one of a multitude of transaction elements. The central processor 40 identifies a particular transaction with reference to the BOL number, the shipper's customer number for the receiver 22, the payment ID, the carrier's customer number for the shipper 20, the merchant number, the account ID, the receiver's order number for the shipper 20, the shipper's order number for the BOL number, or the shipping date. This ensures compatibility between the user reference numbers such that the user can access information using their unique reference number assigned to the transaction.

The example application has additional advantages. The central processor 40 provides to all authorized users the ability to generate custom analysis of their own data. This has the advantage of giving the carrier 22 the ability to extract payment data needed to automatically post his accounts receivable system. This is an advantage over existing systems that rely on manual distribution of payment against the account receivable system. Similarly, the shipper can extract payment data and automatically post his accounts payable which closes out the individual accounts payable due to each carrier. An advantage stemming from this automated system is that the shipper 20 does not need a paper invoice in order to have proof of delivery. The shipper 20 accesses the central processor 40 and verifies which shipments have been delivered by a particular carrier 22. Similarly, the carrier 22 accesses the central processor 40 to find out which transactions have been paid out by the shipper 20. This informational system removes much uncertainty from the shipment process that promotes more efficient use of available resources such as working capital, transportation, and personnel.

In a particular application, the central processor 40 generates standard shipment transaction summary reports and provides appropriate access to the reports by various users. These reports include a transaction inventory control report, an open aging summary report, a suspense inventory control by source report, and a suspense inventory aging summary report. The central processor 40 uses the security profiles to determine which subset of transaction records will be summarized for each user. For example, the shipper 20 has access only to that shipper's reports.

The inventory control report provides control totals of BOL numbers, merchandise value, and freight value. There are key control points including: starting inventory position, new BOL's from shippers, BOL's closed since the last report by the different methods discussed for closing BOL numbers, BOL's re-opened since the last report by manual proof of delivery override via customer service, BOL's canceled since the last report, and the ending inventory position.

The open aging summary report contains those BOL numbers that have not been delivered. In addition, the freight value and merchandise value for each shipper ID and Dock ID are supplied for distinct age groups. The age groups include groupings by

- consecutive days since the shipping date and one group for 10 days past the shipping date. The suspense inventory control by source report includes merchandise and freight value amounts of transactions in the suspense file. Several control points for the suspense inventory control include: starting inventory position, new inventory added
- 5 since last report, inventory cleared since last report, inventory deleted since last report, inventory undeleted since last report, and ending inventory position. The suspense inventory aging summary report provides an aged summary of suspense files including the merchandise and freight value of items that are in the suspense file by original receipt date.
- 10 The central processor 40 generates detailed reports including: the inventory aging detail report, the suspense inventory aging detail report, and the declined item aging detail report. The detail reports are viewed by either the shipper ID/Dock ID/account ID combination or by the carrier ID/merchant number combination. The inventory aging detail report lists the open BOL numbers sorted by the days in
- 15 inventory, the shipper ID combination, and the BOL number. The inventory detail report lists the merchandise and freight value associated with each open BOL number. The suspense inventory aging detail report lists open BOL numbers by source and receipt date. Several fields are displayed including: shipper ID, dock ID, account ID, BOL number, carrier ID, freight value, and the merchandise value. The declined item
- 20 aging detail report allows users to research the cause of exception items and lists the shipper ID combination, ship date, authorization time, BOL number, shipper invoice number, merchant number, and freight value. The declined item aging detail report is viewed by either shipper ID/dock ID/account ID combination, or by carrier ID/merchant number combination.
- 25 The central processor 40 generates two reports that reference declined authorizations. These reports include the declined item summary report and the declined item aging report. The declined item summary report summarizes information regarding the declined authorization. The declined item aging report summarizes the information regarding the declined authorization by the shipping date.

- Referring now to FIGs. 10A-10C, according to the present invention, example transactional processes for implementing ship transactions are shown in the form of flow diagrams. FIG. 10A illustrates a manner in which accounts for shippers and carriers can be set up in a database for processing shipment transactions by the main
- 5 CPU system running the operations.

- The approach shown in FIG. 10A includes five levels, with each level applicable to both the shipper and the carrier. At level 1010, an account is merely established for the shipper/carrier. Setting up the account and defining the company profile is administered by the central operators. For instance, if a credit institution, such as a bank
- 10 with a credit division, owns and/or is operating the main CPU and defining communication access to the system, an agent of the credit institution administers these tasks. At level 1014, a company profile is established on the main CPU for the shipper/carrier. A typical company profile includes, among other particulars, contact information, facility locations, invoicing/debit/credit agreements for system use, and
- 15 security information. Defining a company profile permits the shipper/carrier to be a user of the system with access to information processed by the main CPU for the shipper/carrier. At level 1016, a profile for the system administration is established to refine the shipper/carrier's access to the information associated within its company (the shipper or carrier) and organizational unit. At levels 1020 and 1024, the
- 20 shipper/carrier's administrator defines operational profiles to define how the company will use the shipment transaction system.

- According to a more specific implementation, there are specific operational profiles and specific user profiles used by the main CPU to execute operations. These specific operational profiles fall into five categories: approval policies to define the
- 25 monetary limits for each particular approver of bills; floor limits to define any rule for automatic approval of bills; G/L charts of accounts that are used in the process of allocating freight expenses to particular accounts within the company's general ledger system; operational filters to define characteristics of the rights of each user of the system within the company; and data filters that define business rules that are used to
- 30 limit the transactions such a user can see.

- The specific user profiles, which are issued and managed by the company using the system, are used by the system to enforce business rules with the company. These rules may include, for example, that every user ID: be unique, associated with only one organizational unit within only one company, and have only one operational filter and
- 5 only one data filter associated with it. Examples of other such business rules include establishing that actions performed by the company are binding and that updates to the company's profiles be made regularly.

- At levels 1026 and 1028, the main CPU uses the previously defined information to establish the user relationships (depicted at level 1026) and to define carrier vendors
- 10 or shipper customers, respectively, for the shipper-type company or the carrier-type company.

Using the above information, the main CPU then begins to define trading partners and trading parameter data for each shipper and for each carrier. This is depicted at level 1034 of FIG. 10A.

- 15 For additional examples of ways to implement the above-characterized levels, as well as other aspects and examples of the various example embodiments, reference may be made to the attached Appendix A (Training Guide) and to the attached Appendix B (Users Guide). For example, for information relating to the example setup information of FIG. 10A, reference may be made to Chapter 1 of attached Appendix B (Users
- 20 Guide).

- FIG. 10B illustrates an example relationship that may be used in the shipment transaction system for processing freight payments. As discussed above in connection with FIGs. 1, 2 and 2A, upon receipt of the BOL (block 1040), the main CPU receives notification of delivery (block 1042) and the creditor (e.g., financial institution or bank)
- 25 approves transaction 1044 and authorizes payment (block 1046). Payment is then made to the carrier as indicated in block 1048.

- FIG. 10C illustrates example processes for transactional flow, between a carrier and a shipper, in an example shipment transaction system referred to as "PowerTrack".® As illustrated in FIG. 10C, work transactions 1050 occur in response to activity input to
- 30 the system from equipment, such as computers or other data input/output devices,

operated by the shipper and the carrier. Such equipment is depicted as shipper items 1052a, 1052b and carrier items 1054a, 1054b. The main CPU 1056 processes the data via Internet communication links, and interfaces with a payment-center CPU 1058 operated by the creditor/bank. As illustrated, the main CPU 1056 and the payment-center CPU 1058 exchange data with each other and the items 1052a, 1052b, 1054a, 1054b to effect proper payment in response to cleared shipment transactions.

FIG. 11 illustrates an example communication path from an architectural perspective in which an array of computers and data routers are used in an example implementation of a system and method, according another aspect of the present invention. The computers include gateway-implemented firewalls 1064, 1066 and 1068, and data routers in the form of hubs H1-H6 (available from 3Com). Each of the firewalls 1064, 1066 and 1068, and data routers H1-H6, along with other accessible stations in FIG. 11, have unique Internet addresses. The operators controllers 1076 of the main CPU 1078 access tier II, which is used to maintain databases for the system, via a path through the firewall 1066 and directly back through hub H3, or via a path out toward hub H2 and back through hub H3. The financial institutional (not shown) accesses the system, along with access by the shippers and carriers, via the Internet at block 1080. An outside entity, for example, an auditor can also be setup and authorized by the system to access information, and this typically occurs via a path through the Internet or the firewall 1064.

Within tier II, database/servers are maintained in a dual manner to permit for execution of programs for actual system use and for user acceptance testing. Business logic database/servers 1081 and 1083 store an object oriented program that is used to execute the processing in the actual system (1081) and for user acceptance testing (1082). Also for the actual system (1082) and for user acceptance testing (1084), database/servers 1082 and 1084 provide web server functions for the Internet access at block 1080. Database/server 1085 is used as a background tool and is useful, for example, for sending and receiving information between tier II components and the main CPU 1078. Database/servers 1089 and 1090 store shipment transaction information for processing in the actual system (1089) and for processing the same data

for analytical purposes, for example, in response to inquiries made by the shipper, the carrier, the bank, or an outside entity (e.g., an auditor).

Database/servers 1088, 1089 and 1090 can be used to duplicate the functionality of database/servers 1085, 1086 and 1087 for testing purposes.

- 5 Database/servers 1091 and 1092 can be used as interactive voice response units adapted to be used by carriers to receive information such as delivery notification, as discussed previously.

- As mentioned above, for additional details concerning example implementations and aspects, and alternative embodiments of the present invention, reference may be
10 made to the attached Appendix A (Training Guide) and to the attached Appendix B (Users Guide), each of which forms part of the instant patent application.

- This invention need not be limited to scenarios involving shipment of product and the use of physical carriers for transportation of the product or equipment, since an important advantage of the invention is to provide the parties involved a mechanism for
15 auditing transaction information to validate that a transaction occurred properly and as agreed upon by the parties involved. The present invention also provides for application of the validation system in other areas, by way of example only, but should not be limited to these transaction scenarios. Telecommunications service vendors or telephone operating companies (TELCOs) are interested in providing their services to
20 third party customers but do not wish to add additional infrastructure (more personnel and equipment) in order to engage more customers for their services. The TELCO can engage the services of an independent system manager that installs the necessary hardware and software at the location of the third party customer and is then responsible for ongoing service and maintenance of the equipment and software. In return, the
25 system manager is paid a fee by the TELCO for the initial set up and ongoing service calls that may be made by the third party customer. These transactions are validated to ensure that they were properly completed and then payment is sent to the system manager for services rendered.

- In the area of services, vendors that provide a particular service usually secure
30 customers through a network of agents or service providers that work directly with the

FIG. 13 illustrates an example in which the service provider 1320 initiates the transaction, pursuant to customer 1321A request for quote, and generates the transaction information that commences the entire transaction. With this system, vendor 1322 can verify that the transaction entered into by the service provider has indeed taken place and that the customer is satisfied before payment is authorized to the service provider. Specifically, the purchase order is processed through processor 1324 that acts in conjunction with quotation generating engine 1330 (such as a computer-run programmed task). Processor 1324 can simultaneously conduct a credit check of customer 1321A as per instructions of vendor before any transaction is formally entered in the system. Quotation generating engine 1330 generates a quote for the customer with the parameters of the service (which may also include a product purchase as part of the package) that he is subscribing to. By way of example, if the transaction is for cellular phone service, engine 1330 generates a quote for the cost of the monthly service, rate per minute, cost of the initial phone purchase, any weekend discounts, etc. Typically, the quotation engine may be a combination of application software and hardware (local PC or server; or a server that is remotely accessed) that contains the quotation algorithm and database that the user (service provider or vendor/subvendor) needs to generate a formal quote for the customer while initiating part of the transaction in the system. The engine 1320 accepts data like: name of prospect customer, address, phone number, # of users, type of service desired, billing particulars, credit history evaluation, social security numbers, etc.. The next step can include the generation of a customer profile (which can include information on the service provider and his location) and identification/customer number that can be used for tracking purposes by the vendor (or subvendor). This customer I.D. number can be used later to track payment to service provider. The quotation algorithm and database within engine 1330 (usable by service provider 1320) can remain static for a fixed period of time, can be changed at regular or agreed upon intervals or can be coupled real-time to the vendor's database to allow for up to the minute rate changes, special discounts or promotional programs that may be applicable. Line 1331 indicates the coupling that can exist between engine 1330 and vendor 1322, that may be hardwired, wireless, through a

network, internet, satellite or any other mechanism or system that will allow for one or two way coupling and communication between the vendor and the service provider.

- Assuming that all details of the initial transaction are in order, processor 1324 sends the complete purchase information to data processing device 1334 of access
- 5 terminal 1332; processing device 1334 then sends the transaction information to central processor 1340. Vendor processing device 1346 receives proof of delivery of service provided, or confirmation that the subscriber of the service has met all of the acceptance criteria, and that he is now ready to be connected to the system (e.g. cellular phone system). Central processor 1340 processes and stores all pertinent transaction
- 10 information in data storage unit 1342, which allows for immediate access to the information by the vendor 1322, the service provider 1320 and any other authorized users for verification of data integrity and tracking purposes. The remainder of the transaction is similar to embodiments already described, wherein the paying institution 1352 and the issuing institution 1344 are involved in processing the payment to the
- 15 service provider once it has been authorized by vendor. Further, the paying and issuing institution may be one and the same and can charge its fees to the vendor and service provider in the system as it is receiving payments from vendor 1322 and tendering payments to service provider 1320.

- As an example of the type of information that could be used in the
- 20 vendor/service provider scenario, reference is made to the following Tables:

Table 1A - Transaction Information
(Vendor/Service Provider)

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>DESCRIPTION</i>
Vendor ID	10	N	Record Vendor ID
Vendor Office ID	3	N	Record Vendor Office ID
Quotation #	15	AN	Record ID; also customer PO#
Ship Date	8	N	Record ID, reporting
Service Provider Terms	4	AN	Payment period
Consolidated invoice	1	N	1=Yes; 2=No
Customer Number	10	N	Alternate index, allows Vendor 1220 to specify it's customer number
Customer PO #	15	AN	Alternate index, reporting

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>DESCRIPTION</i>
Order #	15	AN	Alternate index
Service Provider Order Number	15	AN	Reporting, PO associated with service provided
Service Provider Name	35	AN	Name of service provider

Table 11 - Vendor Profile

DATA ELEMENT	WIDT H	TYPE	DESCRIPTION
Vendor ID	10	N	Uniquely identifies a legal entity using a single quotation system (e.g.engine 1230), assigned by the CP 1240.
Account ID	16	N	Account # assigned to Vendor 1220 by issuing processor 1245.
Vendor Name	32	A/N	
Vendor Address 1	32	A/N	Headquarters Address.
Vendor City	28	A/N	
VDR, State/Province	3	A/N	
VDR, Country	3	A/N	
VDR,Contact	32	A/N	
VDR, Phone	10	N	
Open Date	8	N	Supplied by CP 1240 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 1240 when first quote record is received by CP 1240 - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 1240 every time a quote record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by system when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status, valid values are OPEN, CLSD, HOLD

DATA ELEMENT	WIDT H	TYPE	DESCRIPTION
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 1240
Last update time	4	N	Automatically stamped by CP 1240. HHMM format
Last Update User	8	A/N	Automatically pulled from user profile by CP 1240.

Table 12 – Vendor/Service Provider Profile

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Vendor ID	10	N	
Service Provider ID	4	A/N	
Merchant Number	10	N	Assigned by Paying processor 1254. If blank, use default value from service provider profile.
Proof of Service Delivery (POD)	1	A	"Y" for POD to be required, "N" for POD not required
Type of POD	4	A	Identifies in what manner the POD is to be received.
Auto close days	2	N	Number of days after which the transaction will close and be paid to the Service Provider 1222 regardless of whether or not POD has been posted.
Open Date	8	N	Automatically supplied by CP 1240 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 1240 when first quote record is received by system - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 1240 every time a quote record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Current Status Date	8	N	Automatically updated by CP 1240 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 1240
Last update time	4	N	Automatically stamped by CP 1240 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

5

Table 13 -- Service Provider Profile

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
SP	4	A/N	4 character code that uniquely identifies a Service Provider (SP) 1222.
Merchant Number	10	N	Paying processor 1254 assigns to each SP.
SPp 22 Name	32	A/N	DBA name of SP HQ
SP Address 1	32	A/N	
SP Address 2	32	A/N	
SP City	28	A/N	
SP State/Province	3	A/N	
SP Country	3	A/N	
SP Contact	32	A/N	Name of primary contact at SP HQ
SP Phone	10	N	Phone number of primary contact at SP HQ

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Open Date	8	N	Automatically supplied by CP 1240 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 1240 when first quote record is received by system on this SP 1222 - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by system every time a quote record is processed for this SP 1222
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 1240 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 1240
Last update time	4	N	Automatically stamped by CP 1240 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists by CP 1240

Table 14 – Vendor/Service Provider Access Terminal Profile

COLUMN NAME	WIDT H	TYPE	DESCRIPTION
Vendor ID	10	N	Uniquely identifies a legal entity using a single quotation system (e.g engine 1230)
SP ID	3	N	Uniquely identifies a particular physical location with a Service Provider ID.
Account ID	16	N	Issuing Processor 1254 assigns. Defaults from SP profile, can be overridden by vendor

COLUMN NAME	WIDTH H	TYPE	DESCRIPTION
SP Name	32	A/N	DBA name of SP originating quote
SP Address 1	32	A/N	Street address of SP originating quote
SP Address 2	32	A/N	
SP City	28	A/N	
SP State/Province	3	A/N	
SP Country	3	A/N	
SP Contact	32	A/N	
SP Phone	10	N	To be used for reporting against completion transaction
Open Date	8	N	Automatically supplied by CP1240 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 1240 when first quote record is received by system - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 1240 every time a quote record is processed
Current Status	4	A	Automatically updated by CP 1240 on the effective date if effective date was pre-entered or as part of the on-line transaction if the effective date is changed to today. Valid values are OPEN, CLSD, HOLD
Current Status Date	8	N	Automatically updated by CP 1240 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 1240
Last update time	4	N	Automatically stamped by CP 1240 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

Table 15 – Service Quotation Data Elements

Data Element	Length	Type	Source	Purpose
Vendor ID	10	N	CP 1240	Record ID
SP ID	3	N	CP 1240	Record ID
Account ID	16	N	CP 1240	Record ID; reporting

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>Source</i>	<i>Purpose</i>
Quotation #	15	AN	S P	Record ID
Service Date	8	N	SP	Record ID, reporting
SPAC	4	A	SP	Alternate index, identifies Service Provider
Merchant #	10	N	CP 40	Alternate index, for CP 1240 usage
Vendor #	10	N	SP	Alternate index, allows SP to specify its vendor number for a given vendor
Customer Number	10	N	Vendor/ SP	Alternate index, allows Vendor or SP to specify it's customer number
Customer PO # (Quote #)	15	AN	SP	Alternate index, reporting
SP Order #	15	AN	SP	Alternative Index
Vendor Order Number	15	AN	SP	Reporting, alternate locator
Vendor Name	35	AN	SP	Reporting
Vendor Contact Person	20	A	SP	Claims
Vendor Phone #	15	AN	SP	Claims
Origin Designator	10	AN	SP	Reporting
City	20	AN	SP	Reporting
State	2	A	SP	Reporting
ZIP Code	9	N	SP	Reporting
Division Code	2	AN	SP	Reporting

Table 16 - Service Quotation Line Item Detail Data Elements

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>Source</i>	<i>Purpose</i>
Vendor ID	16	N	CP 1240	Record ID
Quotation/PO #	15	AN	SP	Record ID
Service Date	8	N	SP	Record ID
Service Description	28	AN	SP	reporting, claims
Service Program ID	8	AN	SP	reporting, claims

- The above-described system can be used by authorized representatives (or agents) to help customers subscribe to other types of services for a fee. Travel agents are already commission-based when they assist customers in making reservations for lodging, air and land transportation; however, they can now be tied to this system for
- 5 faster processing of payments back to them in return for a fee that can be charged by the banking institution for this service.

- The system can also be used in the area of providing wireless communications services (or entertainment services such as satellite programming or satellite communications) to third party customers , via authorized or empowered
- 10 representatives, to verify that customers have the correct equipment and software to receive the service from the communications vendor. The representative is involved in preliminary issues of credit checks and programming selection and is the normal contact for the customer if any service issues arise. The representative is paid a fee for the initial set up and ongoing support of the customer using the transaction validation
- 15 system described to ensure that the work was properly done and that payment is issued to the authorized representative by an authorized user of the system. This system is also applicable in the area of video conferencing services, where a third party customer is interested in working with the communication services vendor through a communications consultant. The consultant helps to set up the equipment and software
- 20 required to connect to the video conferencing network and is there to service the customer's needs on an ongoing basis. The consultant provides all of the services for a fee to be paid by the communications service vendor.

- Software or information technology (IT) developers also benefit from this system when using IT consultants that work closely with third party customers,
- 25 specifically when such customers need help in upgrading and maintaining their systems. The IT consultants are paid using the transaction validation system described for services rendered. Companies selling products through online (Internet) agents such as Buy.com, eBay.com or eToys.com or via a normal telephone (such as florists, catalog purchases, QVC, Home Shopping Network, etc..) also benefit from this system.

The role of a "vendor" is becoming blurred as more companies start to shift their manufacturing of products to companies that specialize in the manufacture of that type of product in response to the customer's demand for lower cost, shorter lead times and better technology. This is especially true in the area of computers and consumer electronics. OEM companies like IBM and HP, in the computer area, and Ericsson and Qualcomm, in the mobile communications area, have shifted much of their manufacturing to contract manufacturers such as Soletron and Flextronics. Contract manufacturers have the capability of taking the engineered designs of these customers and manufacturing them at the lowest possible cost due to their purchasing strength and logistic capabilities. They in turn will ship the completed product to the end customer (e.g. Circuit City, Best Buy, and etc..) on behalf of the OEM and invoice that customer if the OEM chooses that method. Here the contract manufacturer has control of the carrier that will be shipping the product to the OEM's customer. In the eyes of the customer the vendor is still the OEM that is the party receiving the P.O. and whom they are holding responsible if the product has a problem or is not shipped on time. The emerging vendor/subvendor relationship, including the service provider (providing transportation services in this case) who is involved in this type of transaction, requires the banking institution to ultimately pay the service provider and subvendor when it is authorized by the vendor to do so. This is another opportunity for the banking institution to expedite auditing and financial negotiations due to the presence of the subvendor in this equation.

Referring now to the example process depicted in connection with FIG. 14, vendor/OEM 1420 receives a purchase order through vendor processor 1424A from a customer for product/equipment with a requested shipping date. Processor 1424A initiates a transaction by acting in conjunction with subvendor processor 1424B and quotation generating engine 1430 to generate a quote for the equipment and shipping date for the customer. Subvendor processor 1424B sends the quotation to vendor processor 1424A and to a data processing device 1434 of the subvendor access terminal 1432. Vendor can now add their markup before advising customer of equipment ship date but now knows what it owes the subvendor if the entire transaction occurs as

planned. The data processing device 1434 generates the transaction information and sends the transaction information to the central processor 1440, which in turn identifies and centrally tracks the transaction information. A service provider device 1446 receives proof of delivery information and sends this information to the central processor 1440. Central processor 1440 processes and stores all pertinent information in a data storage unit 1442 and allows immediate access to their information by the vendor, subvendor and the service provider. When vendor processor 1424A receives confirmation or proof of delivery then it, or its authorized agent/user, will authorize payment to subvendor. This is also a signal to subvendor that the subvendor controlled service provider 1422 can now be paid. Service provider's 1422 notice to central processor 1440 that delivery is confirmed reaches both vendor and subvendor simultaneously through central processor 1440 to ensure a closed loop system. The issuing processor 1445, of the issuing institution 1444, maintains a credit account for both the vendor 1420 and subvendor 1421 and debits the vendor's account for the cost of the entire project (which was calculated with a different algorithm initially to avoid disclosing cost information to the end customer) when payment to subvendor is authorized by vendor. Subvendor's account is debited by issuing processor 1445 for cost of service provider's 1422 service when authorized by subvendor. The remaining part of the auditing and payment system is substantially similar to embodiments described above.

Referring briefly to Tables 1-7, the content of these tables for the subvendor is similar to that of the shipper/carrier scenario described earlier since the service provider is acting like a manufacturer of goods that needs to ship product to a customer via a carrier. Additional profiles similar to Table 1B (Transaction Information – Vendor/Subvendor/Service Provider), Table 8 (Vendor Profile) and Table 9 (vendor/subvendor profile) would be developed for a particular transaction. The subvendor can provide part of the service package that the vendor has contracted him to do and have the package delivered to the end customer through another party that will act as a service provider. For instance, IBM contracts with a subvendor to install a software update for a global IBM customer with a presence in Costa Rica. The

subvendor in turn contracts with a local Costa Rican software consultant (service provider) to perform the actual software update at the customer site. Once the tables have been established and put into the system (and the authorized users identified) the auditing and payment operations can be performed substantially the same as described

5 in earlier embodiments.

Table 1B - Transaction Information
(Vendor/Subvendor/Service Provider)

10

<i>Data Element</i>	<i>Length</i>	<i>Type</i>	<i>DESCRIPTION</i>
Vendor ID	10	N	Record Vendor ID
Vendor Office ID	3	N	Record Vendor Office ID
Quotation #	15	AN	Record ID; also customer PO#
Ship Date	8	N	Record ID, reporting
Subvendor Terms	4	AN	Payment period
Consolidated invoice	1	N	1=Yes; 2=No
Customer Number	10	N	Alternate index, allows Vendor1420 to specify it's customer number for a given receiver
Customer PO #	15	AN	Alternate index, reporting
Order #	15	AN	Alternate index
Subvendor Order Number	15	AN	Reporting, PO associated with shipment
Service Provider Name	35	AN	Name of service provider or shipping company

Table 8 - Vendor Profile

DATA ELEMENT	WIDT H	TYPE	DESCRIPTION
Vendor ID	10	N	Uniquely identifies a legal entity using a single quotation system (e.g.engine 1430), assigned by the CP 1440.
Account ID	16	N	Account # assigned to Vendor1420 by issuing processor 1445.
Vendor Name	32	A/N	
Vendor Address 1	32	A/N	Headquarters Address

DATA ELEMENT	WIDT H	TYPE	DESCRIPTION
Vendor City	28	A/N	
VDR. State/Province	3	A/N	
VDR. Country	3	A/N	
VDR.Contact	32	A/N	
VDR. Phone	10	N	
Open Date	8	N	Supplied by CP 1440 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 1440 when first quote record is received by CP 1440 - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 1440 every time a quote record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by system when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status, valid values are OPEN, CLSD, HOLD
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 1440
Last update time	4	N	Automatically stamped by CP 1440. HHMM format
Last Update User	8	A/N	Automatically pulled from user profile by CP 1440.

Table 9 – Vendor/Subvendor Profile

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Vendor ID	10	N	
Subvendor ID	4	A/N	

COLUMN NAME	DATA WIDT H	DATA TYPE	DESCRIPTION
Merchant Number	10	N	Assigned by Paying processor 1454. If blank, use default value from subvendor profile.
Proof of Delivery (POD)	1	A	"Y" for POD to be required, "N" for POD not required
Type of POD	4	A	Identifies in what manner the POD is to be received.
Auto close days	2	N	Number of days after which the transaction will close and be paid to the Subvendor 1422 regardless of whether or not POD has been posted.
Open Date	8	N	Automatically supplied by CP 1440 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 1440 when first quote record is received by system - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by CP 1440 every time a quote record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 1440 when current status field is updated, YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 1440
Last update time	4	N	Automatically stamped by CP 1440 HHMM format
Last Update User	8	A/N	Automatically pulled from user profile lists

In another embodiment it is envisioned that the different users of the system may be located remotely from the transaction validation system and are

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accessing the system and its database through system processors or computer-like mechanism. For instance, the vendor, subvendor or service provider may be in a foreign country but accessing the transaction system and the central processor arrangement in the U.S. via a computer or a network that connects that user with the transaction system

5 that may be in the U.S. The transaction system and its users need not be co-located. Specifically in Figures 12 and 13, vendor processor 1224 or service provider processors may be tapped into remotely, but to the system these users may appear to be local and using their processors locally to access and use the system.

Accordingly, the present invention provides, among other aspects, a computer

10 processing system for a shipment transaction involving a shipper and a carrier. Further, the present invention provides a computer processing system and method for auditing a transaction between a vendor and a service provider in the area of services. Finally, the present invention provides a computer processing system and method for auditing a transaction between a vendor, subvendor and a service provider. Other aspects and

15 embodiments of the present invention will be apparent to those skilled in the art for consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and illustrated embodiments be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

1 What is claimed is:

Sub C1
1 1. For transaction processing involving transaction information related to services
2 provided by one of a plurality of vendors and processed by one of a plurality of service
3 providers, a transaction validation system for auditing comprising: a central processor
4 arrangement programmed and configured to maintain data relating to an authorized
5 profile list criterion that includes information about authorized users empowered to
6 authorize payment by the vendor, and programmed and configured to process the
7 transaction information by determining whether the transaction information satisfies the
8 authorized profile list criterion, and using the authorized profile list criterion to generate
9 information for auditing a transaction between said one of a plurality of vendors and
10 said one of a plurality of service providers

Sub B1
1 2. A transaction validation system for auditing according to claim 1, wherein said
2 system further includes a means for generating a quotation coupled to said central
3 processor arrangement.

Sub C1
1 3. For transaction processing involving transaction information related to services
2 provided by a vendor, said transaction information initially being generated by one of a
3 plurality of service providers prior to processing by said vendor, a transaction validation
4 system for auditing comprising: a central processor arrangement programmed and
5 configured to maintain data relating to an authorized profile list criterion that includes
6 information about authorized users empowered to authorize payment by the vendor to
7 the service provider, and programmed and configured to process the transaction
8 information by determining whether the transaction information satisfies the authorized
9 profile list criterion, and using the authorized profile list criterion to generate
10 information for auditing a transaction between said vendor and said one of a plurality of
11 service providers.

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Sub B3
1 4. A transaction validation system for auditing according to claim 3, wherein said
2 system further includes a means for generating a quotation coupled to said central
3 processor arrangement.

Sub C1
1 5. A transaction processing involving transaction information related to services
2 provided by a vendor and a plurality of subvendors and processed by one of a plurality
3 of subvendor controlled service providers, a transaction validation system for auditing
4 comprising: a central processor arrangement programmed and configured to maintain
5 data relating to an authorized profile list criterion that includes information about
6 authorized users empowered to authorize payment by the vendor and subvendors, and
7 programmed and configured to process the transaction information by determining
8 whether the transaction information satisfies the authorized profile list criterion, and
9 using the authorized profile list criterion to generate information for auditing a
10 transaction between said vendor and both of said plurality of subvendors and said
11 plurality of subvendor controlled service providers.

Sub B4
1 6. A transaction validation system according to claim 5, wherein said system further
2 includes a means for processing transactions for each of said vendor and said
3 subvendor, said processing transaction means coupled to said central processor
4 arrangement.

1 7. A transaction validation system according to claim 2, wherein said system
2 further includes a means for processing transactions for each of said vendor and said
3 service provider, said processing transaction means coupled to said central processor
4 arrangement.

Sub C1
1 8. A transaction validation system according to claim 8, wherein said processing
2 transaction means is accessible remotely.

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1 9. A transaction processing system involving transaction information related to
2 services provided from one of a plurality of vendors and processed by one of a plurality
3 of service providers, a method for validating a service transaction for auditing
4 comprising:
5 generating transaction information prior to processing by vendor;
6 providing an authorized profile list criterion that includes information about
7 authorized users empowered to authorize payment by the vendor;
8 using a computer arrangement, maintaining data relating to the authorized
9 profile list criterion and processing the transaction information by determining whether
10 the transaction information satisfies the authorized profile list criterion, and by using the
11 authorized profile list criterion to generate information for auditing a transaction
12 between said one of a plurality of vendors and said one of a plurality of service
13 providers.

1 10. A method for validating a service transaction, according to claim 9, further
2 including sending service-related information from an external device and generating a
3 set of transaction information therefrom.

1 11. A method for validating a service transaction, according to claim 10, further
2 including informing the computer arrangement of provision of the service by the service
3 providers, and using the computer arrangement to audit the service transaction and
4 payment thereof in response to the transaction information and the authorized profile list
5 criterion.

1 12. The method according to claim 9, further including communicating service
2 related information to said computer arrangement from remote location.

1 13. For transaction processing involving transaction information related to services
2 provided from a vendor and one of a plurality of subvendors and processed by one of a

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C1

3 plurality of subvendor controlled service providers, a method for validating a service
4 transaction for auditing comprising:
5 generating transaction information prior to processing by subvendor;
6 providing an authorized profile list criterion that includes information about
7 authorized users empowered to authorize payment by the vendor; and
8 using a computer arrangement, maintaining data relating to the authorized
9 profile list criterion and processing the transaction information by determining whether
10 the transaction information satisfies the authorized profile list criterion, and by using the
11 authorized profile list criterion to generate information for auditing a transaction
12 between said one of a plurality of vendors and said one of a plurality of service
13 providers.

1 14. A system for billing a vendor and subvendor, and paying a service provider and
2 a subvendor for a completed service-related transaction, comprising:
3 means for receiving a set of transaction information including the cost of service
4 from a central processor arrangement; and
5 means for processing a credit account for the vendor, for verifying that the
6 vendor has sufficient credit to fund the cost of service, for indicating when the account
7 for the vendor should be debited, and for indicating when payment to the service
8 provider and subvendor should be tendered, and for notifying a financial institution the
9 cost of service.

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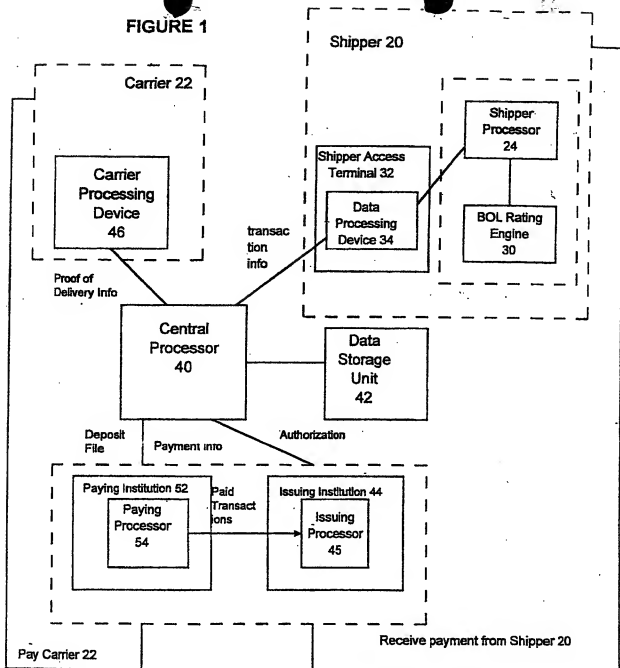
1 15. A method for billing a vendor and subvendor, and paying a service provider and
2 a subvendor for a completed service-related transaction, comprising:
3 receiving a set of transaction information including the cost of service from a
4 central processor arrangement; and
5 using a computer arrangement for processing a credit account for the vendor, for
6 verifying that the vendor has sufficient credit to fund the cost of service, for indicating
7 when the account for the vendor should be debited, for indicating when payment to the

cont 8 service provider and subvendor should be tendered, and for notifying a financial
C1 9 institution of the cost of the service.

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FIGURE 1



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FIGURE 2

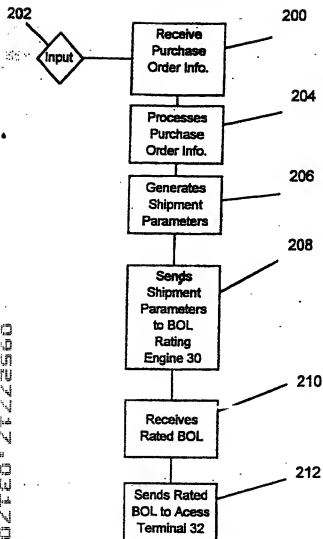
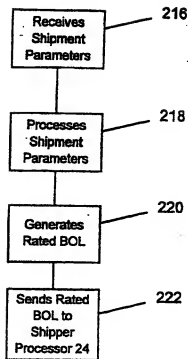
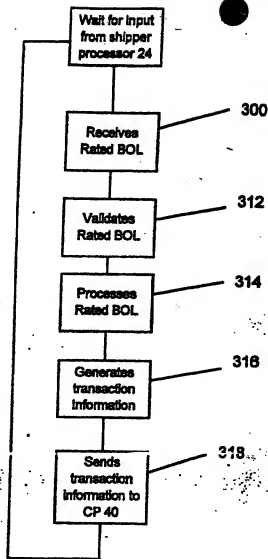


FIGURE 2a



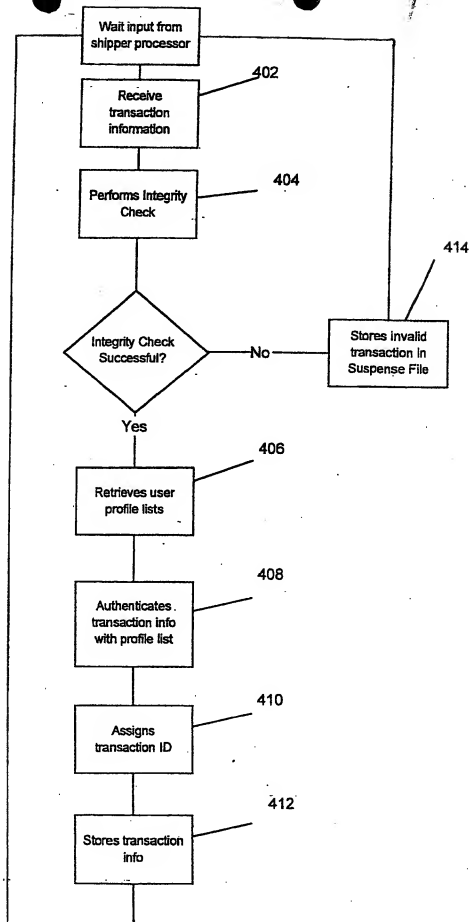
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FIGURE 3



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FIGURE 4



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FIGURE 5

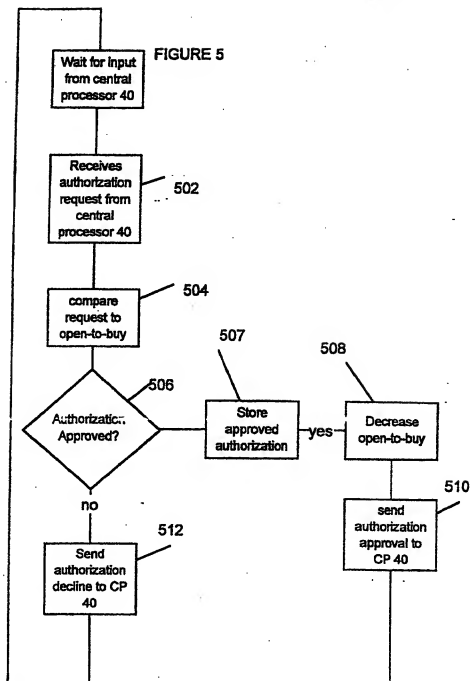
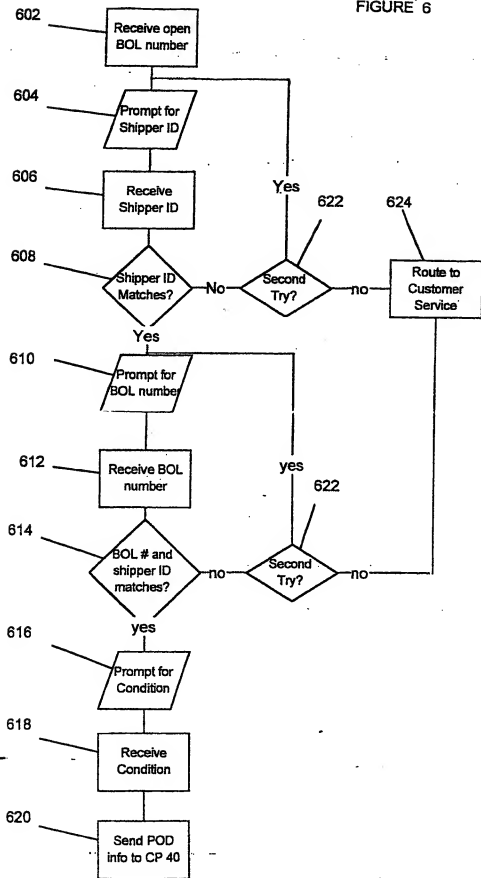


FIGURE 6



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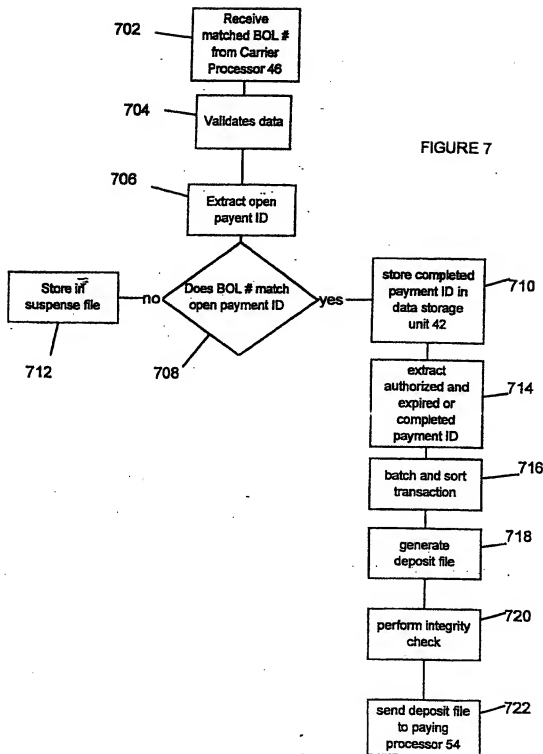
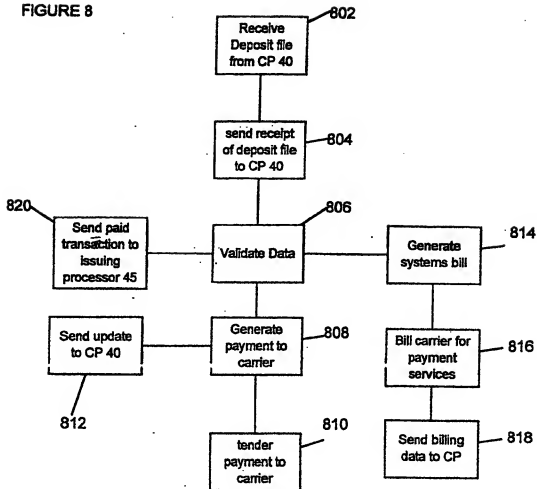
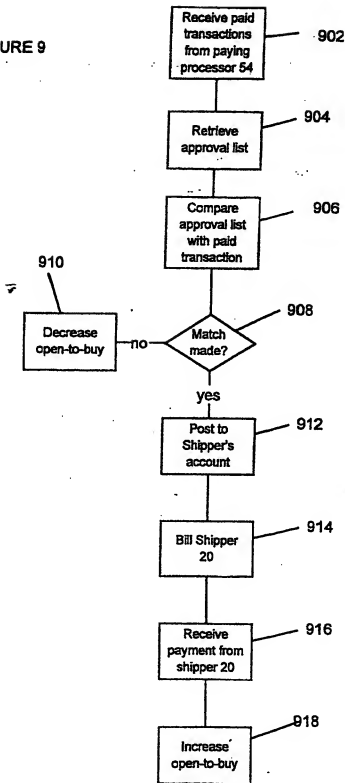


FIGURE 8



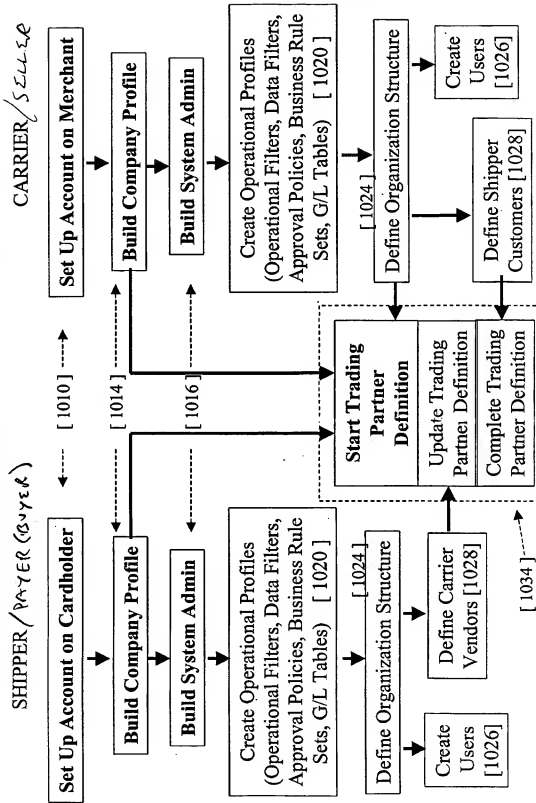
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FIGURE 9

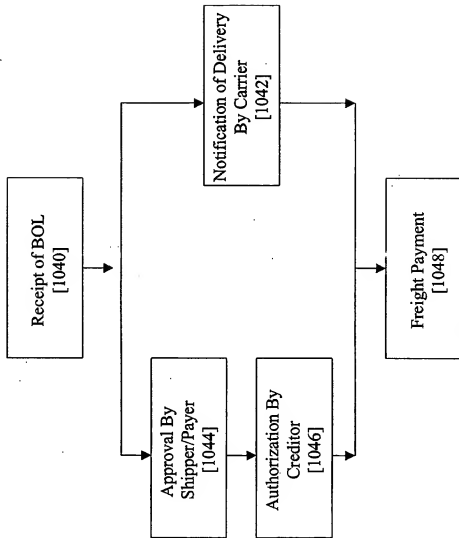


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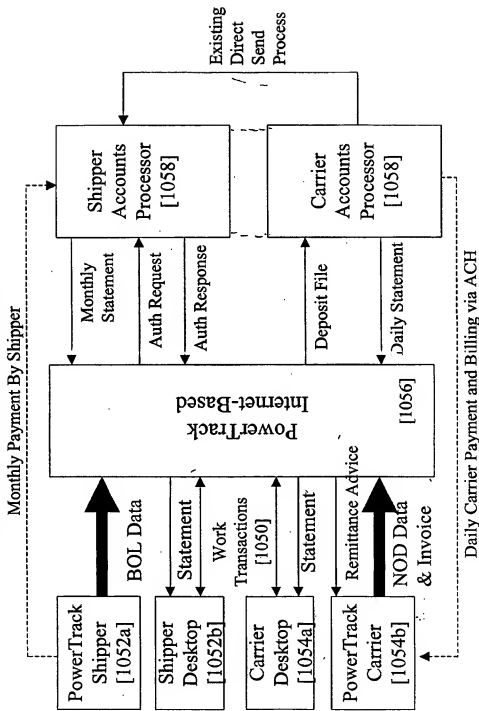
SetUp Process (Figure 10A)



Transaction Processing Flow (Figure 10B)

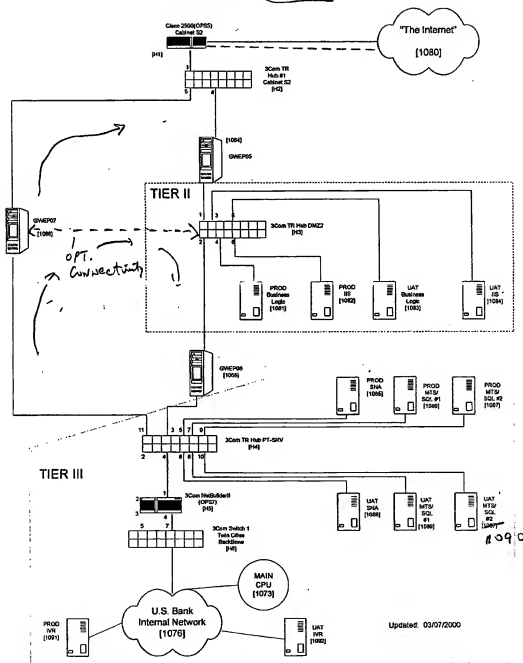


Transaction Flow Overview (Figure 10C)



NOTE: PowerTrack only passes to Carrier Account Processor the minimal data to process the financial transaction. All the BOL detail stays within PowerTrack.

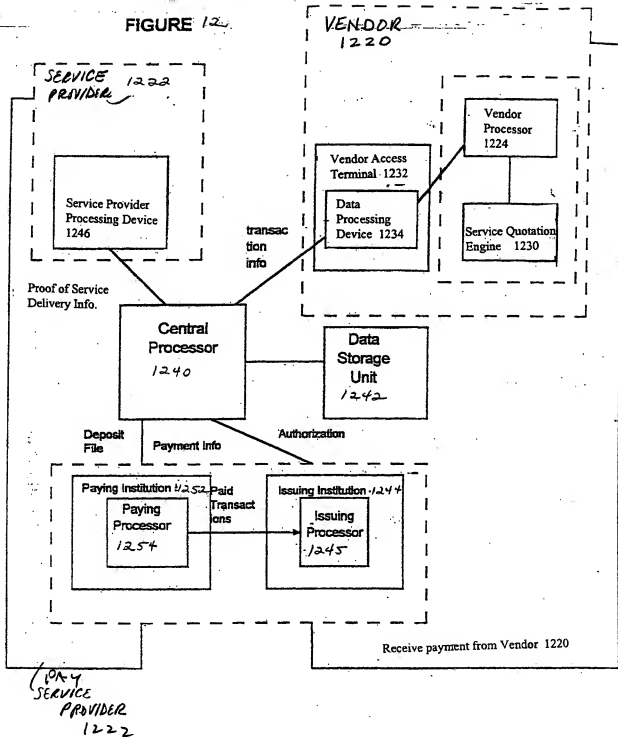
Architecture (Figure 11)



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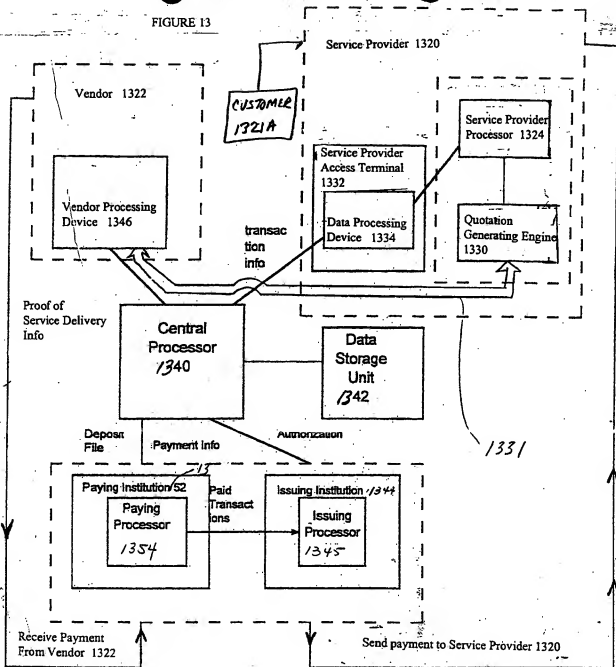
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FIGURE 12



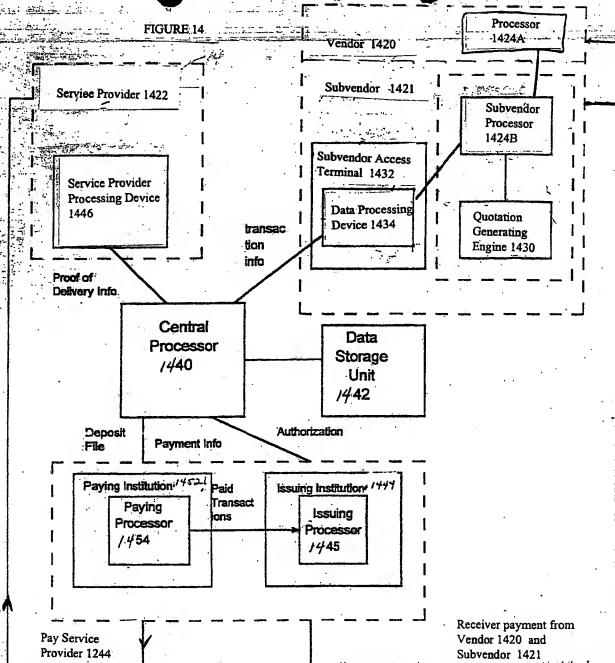
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FIGURE 13



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FIGURE 14



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Exhibit C



US006571149B1

(12) **United States Patent**
Hahn-Carlson

(10) Patent No.: **US 6,571,149 B1**
 (45) Date of Patent: **May 27, 2003**

- (54) **SHIPMENT TRANSACTION SYSTEM AND METHOD**
- (75) Inventor: **Dean W. Hahn-Carlson, St. Paul, MN (US)**
- (73) Assignee: **U.S. Bancorp, Minneapolis, MN (US)**
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
- (21) Appl. No.: **09/259,657**
- (22) Filed: **Feb. 26, 1999**
- Related U.S. Application Data**
- (63) Continuation of application No. 08/748,243, filed on Nov. 12, 1996, now Pat. No. 5,910,896.
- (51) Int. Cl.⁷ **G06F 7/00; G06F 17/00**
- (52) U.S. Cl. **700/216; 705/34; 705/39; 705/40**
- (58) Field of Search **700/213, 216; 705/26, 29, 30, 34, 35, 39, 40**

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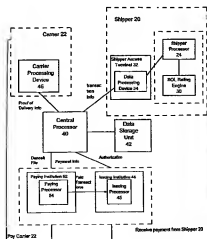
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Primary Examiner—Paul P. Gordon

(57) **ABSTRACT**

A computer processing system for a shipment transaction involving a shipper and a carrier. The system is particularly suited to efficiently automate the payment of a shipment transaction and to efficiently provide access to relevant shipment information. The system includes a shipper processor which receives purchase order information and assists in generating a bill of lading for the transaction. A shipper access terminal interfaces between the shipper processor and a central processor arrangement to control the quantity, quality, and timeliness of information transferred to the central processor arrangement. The central processor arrangement stores selective shipment information and generates reports regarding the transactions. A carrier processor provides proof of delivery to the central processor arrangement. The central processor communicates with one or more financial institutions so that the carrier is paid and shipper billed for the relevant transaction.

21 Claims, 9 Drawing Sheets



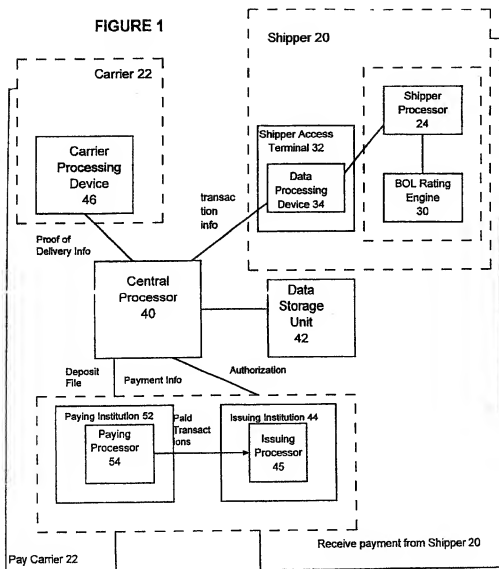


FIGURE 2

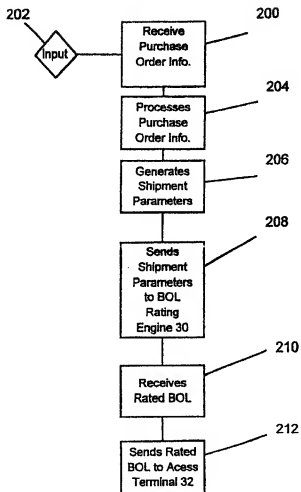


FIGURE 2a

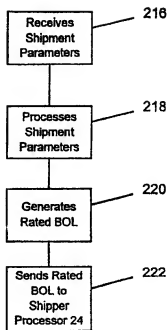


FIGURE 3

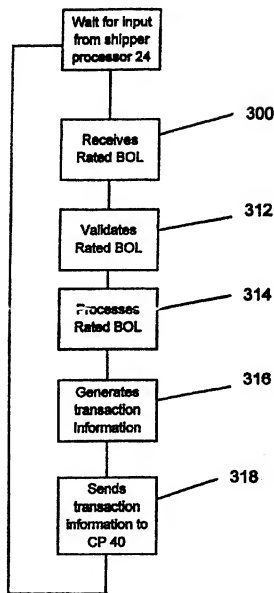
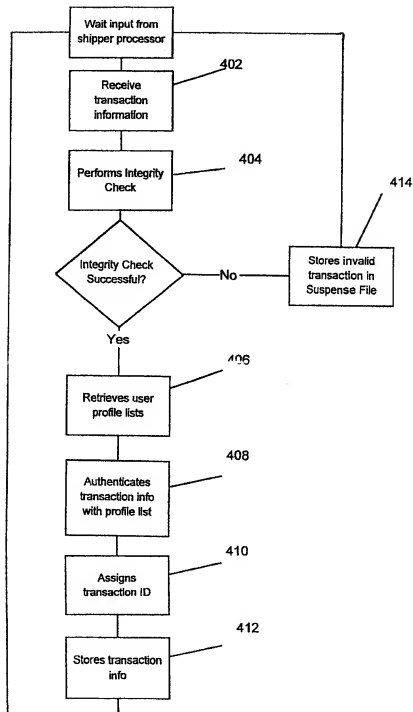
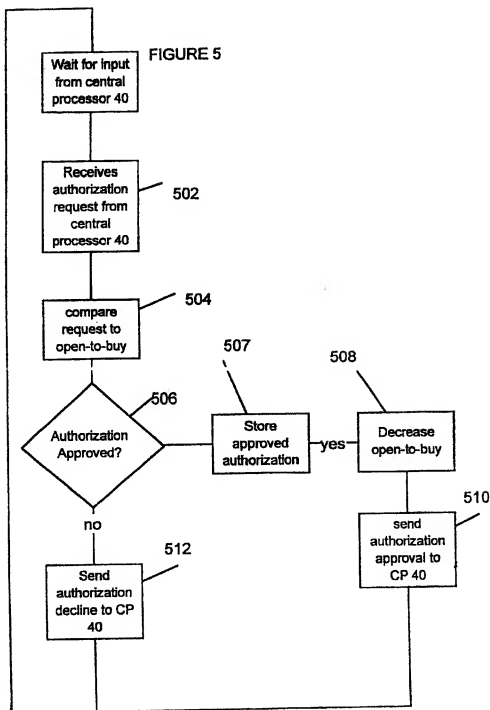


FIGURE 4





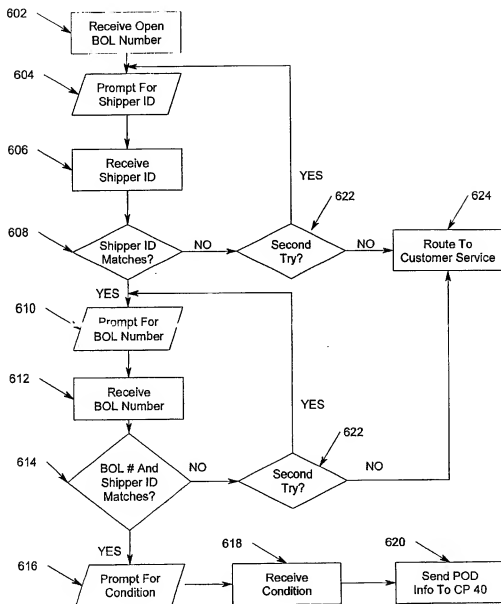


FIGURE 6

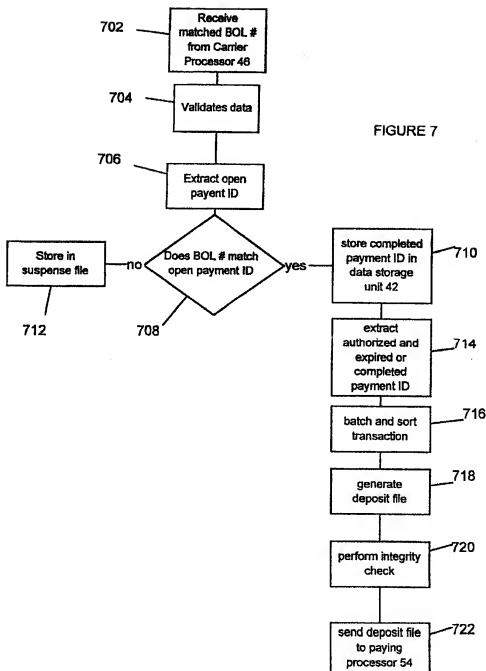


FIGURE 8

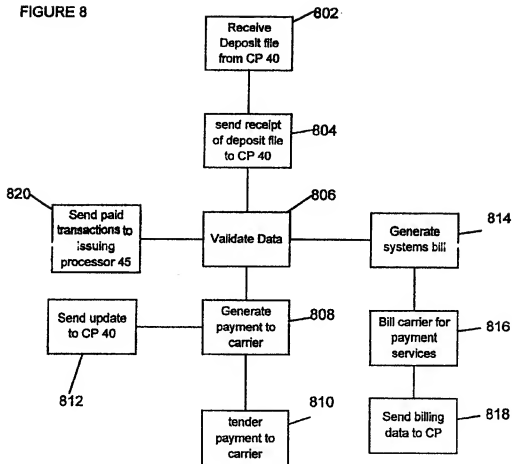
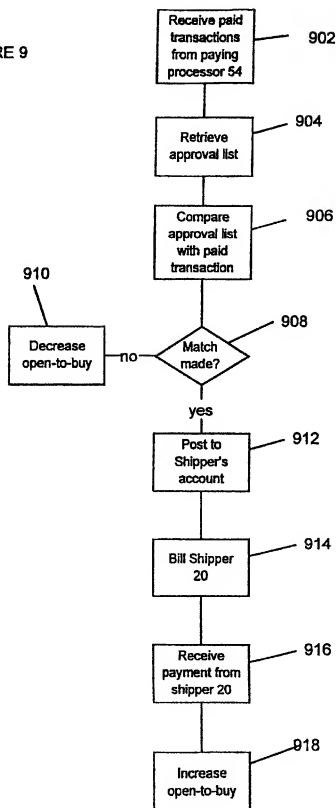


FIGURE 9



SHIPMENT TRANSACTION SYSTEM AND METHOD

This is a Continuation of application Ser. No. 08/748,243 filed Nov. 12, 1996 now U.S. Pat. No. 5,910,896, which application is incorporated herein by reference.

FIELD OF THE INVENTION

The present invention relates to a computer processing system for a shipment transaction involving a shipper and a carrier.

BACKGROUND OF THE INVENTION

Processing shipment transactions between a shipper and a carrier has been a manually intensive effort and has experienced little change. Generally, the shipment transaction process involves a goods transport path and a payment process path. The goods transport path typically starts when a carrier picks up the goods at the shipper's warehouse dock. The carrier receives a copy of a transaction document, sometimes referred to as a bill of lading (BOL), from the shipper. This type of transaction document includes information associated with the shipment transaction which is used by the shipper and carrier to track the shipment of goods. The carrier transports the goods to the receiver where the receiver signs a copy of the BOL to verify receipt of the goods. After the carrier has delivered the goods to the receiver, the carrier also submits the receiver's signed copy of the BOL to the carrier's headquarters.

The payment process path starts when the carrier picks up the goods from the shipper. The carrier sends a copy of the BOL to the carrier's headquarters for processing. The carrier headquarters rates the BOL. Rating involves determining the shipment cost which takes into the account various shipment parameters such as the size, weight, type of material, and destination of the shipment. The carrier creates an invoice, sets up an accounts receivable, and sends the invoice to the shipper's accounts payable department. The shipper, either internally or via a third party, audits the invoice to ensure the final cost is proper.

One of the more burdensome aspects of the traditional process involves reaching agreement as to the final cost. If there is a dispute as to final cost, the shipper and carrier begin a burdensome and sometimes lengthy negotiation process in an attempt to settle the dispute. If the dispute is resolved, the shipper sets up an accounts payable for the transaction. The shipper will then send payment to the carrier and clear the accounts payable. Traditionally, the process for paying the carrier and clearing the accounts payable involves several manually intensive steps. Upon receipt of payment, the carrier clears the accounts receivable. Traditionally, the process for clearing an accounts receivable includes the carrier manually inputting final payment information into the accounts receivable system.

The traditional approach can lead to many disadvantages for a transaction between one shipper and one carrier. Typically, however, there are multiple carriers and shippers involved in multiple transactions, which makes the situation more complex, and that much more slow and inefficient. The process is manually intensive in that it relies on the hard copy of the BOL for proof of delivery and payment, resulting in a series of repetitive and time consuming steps. Also, each BOL is often rated multiple times by multiple parties creating excessive redundancy.

Traditional shipment transaction systems are also highly susceptible to billing errors and fraud. For example, there is

no connection between the delivery of goods and when the shipper is billed for delivery. This may result in double billing, no billing at all, or overbilling the shipper for freight delivery charges. Also, auditing error may occur which results in incorrect billing or payment. In addition, the carrier waits a disproportionately long time for payment while the invoice is being audited and/or disputed. For example, traditionally, a delivery takes about five days whereas payment takes about thirty days. This unnecessary delay adversely affects the carrier's working capital resources.

Additional costs arise as a result of the existing inefficiencies. Many of the costs are individually small, but very large in the aggregate. For example, the carrier incurs administrative costs including: the cost to create and deliver the initial invoice, costs of resolving billing disputes, costs of providing a signed copy of the BOL to the shipper, and costs of posting accounts receivable. The shipper incurs similar administrative costs.

An additional disadvantage involves the inability to obtain immediate information regarding a shipment. Since the process is largely conducted manually, it is very difficult to track a shipment. To learn of the status of shipment or payment, there are various manual steps involved. For example, if the shipper wants to know if the carrier delivered the goods and if the payment has been made, the shipper must call the carrier and the appropriate financial institution.

There have been numerous attempts to improve the existing shipment and payment process. Some improvements have been made to each separate step of completing a shipment transaction, but the entire method remains relatively unchanged. For example, freight agents are used by shippers to schedule shipments and to process the invoice from the carrier. Also, third party service providers have taken over the role of managing the shipper's accounts payable department.

Another attempt to improve this burdensome transaction process involves the use of the Internet. Carriers have offered Internet access to their shipment information. Shippers access the carrier's Internet address and find out the immediate status of the shipment. A disadvantage of this system arises when, as in many applications, the shipper is using multiple carriers. In this typical situation, the shipper separately accesses the address of each carrier in order to find out the status of each shipment. This is unduly time consuming.

Another disadvantage of traditional systems is that the shipper's reference number and the carrier's reference number are not compatible. The carrier maintains the shipment data, so the shipper accesses the data using the carrier's reference number rather than the shipper's reference number. The shipper and carrier track each shipment using multiple reference numbers.

These various attempts to improve the overall process have fallen short of providing a convenient and cost effective system to process a shipment transaction.

SUMMARY OF THE INVENTION

According to one application, the present invention is directed to a shipment transaction system for processing transaction information related to goods shipped from a shipper by a carrier. The system comprises a means for accepting shipment information at the shipper's premises. The system provides a data processing means at the shipper's premises, responsive to the shipment information, arranged and configured to generate a set of transaction

information. The transaction information includes information associated with the carrier and the time at which the shipment is initiated at the shipper's premises. The system uses a central processor arrangement, responsive to the transaction information, and located remote from the shipper's premises, for processing selective information regarding the shipment. The system provides means for informing the central processor arrangement of delivery of goods by the carrier. The central processor arrangement, responsive to informing means, using the transaction information to audit the shipment transaction and payment thereof.

The above summary of the present invention is not intended to describe each illustrated embodiment, or every illustrated implementation, of the present invention. This is the purpose of the figures and of the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

Other aspects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is a block diagram illustrating a specific embodiment which incorporates principles of the present invention.

FIG. 2 is a block diagram illustrating an example flowchart for programming the shipper processor 24 of FIG. 1 according to the present invention;

FIG. 2a is a block diagram illustrating an example flowchart for programming the BOL rating engine 30 of FIG. 1 according to the present invention;

FIG. 3 is a block diagram illustrating an example flowchart for programming the data processing device 34 of FIG. 1 according to the present invention;

FIG. 4 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 manipulating the transaction information according to the present invention;

FIG. 5 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 authorizing a transaction according to the present invention.

FIG. 6 is a block diagram illustrating an example flowchart for programming the VRU unit 48 according to the present invention.

FIG. 7 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 generating a deposit file according to the present invention.

FIG. 8 is a block diagram illustrating an example flowchart for programming the paying processor 54 of FIG. 1 according to the present invention.

FIG. 9 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 crediting a transaction according to the present invention.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE INVENTION

The present invention is generally applicable to a computer processing system for a shipment transaction involving

a shipper and a carrier. The present invention has been found to be particularly advantageous for a system which efficiently automates the payment of a shipment transaction and efficiently provides access to shipment information.

The present invention is generally directed to a system which automates the shipment transaction process to thereby provide a convenient transaction protocol between the delivery, billing, and payment aspects of the transaction.

As shown in FIG. 1, a shipper processor 24 initiates the shipment transaction by acting in conjunction with a BOL rating engine 30 to generate a rated BOL. The shipper processor sends the rated BOL to a data processing device 34 of a shipper access terminal 32. The data processing device 34 generates transaction information and sends the transaction information to a central processor 40. The central processor 40 identifies and centrally tracks the transaction information. A carrier processing device 46 receives proof of delivery information and sends this information to the central processor 40. The central processor 40 processes and stores all pertinent shipment information in a data storage unit 42 and allows immediate access to this information by the shipper 20, the carrier 22, and other authorized users. This reduces the administrative costs of the shipper 20 and the carrier 22. The central processor 40 interfaces with an improved payment system including an issuing institution 44 and a paying institution 52. An issuing processor 45 of the issuing institution 44, maintains a credit account for the shipper 20 and debits the shipper's account for the cost of the shipment. A paying processor 54 of the paying institution 52 tenders payment to the carrier 24.

FIG. 2 is a block diagram illustrating an example flowchart for programming the shipper processor 24 of FIG. 1 according to the present invention. According to this example flowchart, the shipper processor 24 receives 200 an input of relevant purchase order information for storage and processing using an adequate input device 202. Using a conventional desktop PC for example, a keyboard and mouse are adequate input devices. Using a more complex computer arrangement, a digital retrieving device, such as an information scanner, is used to offset some of the labor associated with this inputting effort.

The shipper processor 24 processes 204 the purchase order information including referencing inventory control and customer information systems to generate 206 shipment parameters. In a particular application, the shipment parameters include the identity of the carrier, identity of the receiver, the number of units, the weight of the shipment, the destination of the shipment, the date of shipment, and the estimated date of delivery. The shipper processor 24 is located at the shipper's premises so that the shipper processor 24 receives accurate information resulting in further reliability and efficiency of the system.

The shipper processor 24 electronically sends 208 the shipment parameters to the BOL rating engine 30. The transmission is accomplished conventionally. The BOL rating engine 30 of the illustrated embodiment of FIG. 1, is designed to suit the needs of the particular shipper, the type of goods shipped, and to provide an interface to the shipper processor 24. Conventionally, BOL rating engines, which are in use today, are implemented using a computer processing device such as a stand-alone personal computer, a personal computer connected to a network, or a conventional mainframe.

FIG. 2a is a block diagram illustrating an example flowchart for programming the BOL Rating Engine 30 of FIG. 1 according to the present invention. The BOL rating engine

receives 216 the shipment parameters and processes 218 the shipment parameters. The BOL Rating Engine 30 generates 220 a rated BOL. The BOL rating engine 30 is programmed to an agreed upon rate structure by the shipper 20 and carrier 22. As a result, the BOL rating engine 30 produces consistently rated BOL's. This has the further advantage that the shipper 20 and the carrier 22 do not have to audit the engine often. Existing systems require frequent auditing of the results of the BOL rating engine. With no post audit adjustments, the payment to the carrier 22 is definite.

The BOL rating engine 30 sends 222 the rated BOL to the shipper processor 24. In a particular application, the BOL rating engine 30 is included in the shipper processor 24. The shipper processor 24 performs the rating function of the BOL rating engine 30 so that there is no need to send the shipment parameters to an external BOL rating engine. The shipment parameters are processed and a rated BOL is generated solely by the shipper processor 24.

Another advantage associated with the process in which a rated BOL is produced is that only one BOL rating engine 30 is needed for the entire shipment transaction system. This saves duplicate efforts by the carrier 22 and ensures exact payment. A significant benefit of this illustrated embodiment of FIG. 1 is that the cost depicted on the BOL is the final cost of shipment. Therefore, the shipper 20 and carrier 22 will immediately know the final cost of shipment before the goods are delivered. The BOL rating engine 30 removes ambiguity from the shipment transaction payment process which significantly offsets time consuming payment disputes.

The shipper processor 24 receives 212 the rated BOL and sends 214 the rated BOL to a shipper access terminal 32 located at the shipper's premises. In an alternative embodiment, the BOL rating engine 30 is located off the shipper's premises so that the shipper processor 24 can access the BOL rating engine 30 on an as-needed basis. One advantage is that one standardized BOL rating engine could be electronically linked to multiple shipper processors thereby reducing the cost to each individual shipper.

FIG. 3 is a block diagram illustrating an example flowchart for programming the data processing device 34 of FIG. 1 according to the present invention. The shipper access terminal 32 contains a data processing device 34 which receives 300 the rated BOL. The data processing device 34 validates 312 the rated BOL to ensure that the rated BOL contains data which is complete, error-free, and properly formatted. The data processing device 34 processes 312 the rated BOL and generates 316 a list of transaction information. The transaction information includes the information as seen in table 1 below. The columns in Table 1 represent the following: Data Element is the data that will reside in that particular element location, Length is the length of the data element; type is the type of data element which is either numeric or alpha-numeric, and Description simply describes the function of the data element if necessary.

TABLE 1

Transaction Information			
Data Element	Length	Type	DESCRIPTION
Shipper ID	10	N	Record ID
Duck ID	3	N	Record ID
Bill of Lading #	15	AN	Record ID

TABLE 1-continued

Transaction Information			
Data Element	Length	Type	DESCRIPTION
Ship Date	8	N	Record ID, reporting
	4	A	Standard Carrier Alpha Code, a national standardized carrier identification code.
Carrier Vendor Number	10	N	Alternate index, allows Shipper 20 to specify its vendor number for a given carrier 22
	10	N	Alternate index, allows shipper 20 to specify its customer number for a given receiver
Customer Number	15	AN	Alternate index, reporting
	15	AN	Alternate index
Customer PO #	15	AN	Reporting, alternate locator, carrier 22 PO associated with shipment
	15	AN	Alternate index
Shipper Name	35	AN	
	20	A	
Shipper Phone #	15	AN	
	10	AN	
Origin Designator	20	AN	
	20	AN	
State	2	A	
	9	N	
Division Code	2	AN	
	15	AN	Consolidated Shipments
Reference B/L #1	15	AN	Consolidated Shipments
	15	AN	Consolidated Shipments
Reference B/L #3	1	AN	Reporting
	1	AN	
Type	3	AN	Less than Truck Load (LTL), Truck Load (TL), Rail (RAI), AIR
	1	AN	
Inbound, Outbound Flag	1	AN	
	1	AN	
Prepaid, Collect	1	AN	
	1	N	
COD Flag	1	N	
	9.2	N	
COD Amount	9.2	N	
	9.2	N	
Shipment Value	20	AN	
	15	AN	
Driver Name	15	AN	
	1	AN	
Trailer/Car #	15	AN	
	1	AN	
Trailer/Car Seal#	1	AN	
	1	AN	
Import, Export	2	N	
	7.2	N	
Flag	9.2	N	
	9.2	N	
# Stops	5	N	
	7.2	N	
Stop off Charges	7.2	N	
	9.2	N	
Rated Freight	5	N	
	7.2	N	
Charges	25	AN	
	20	AN	
Cube Dimensions	2	A	
	9	N	
Shipment "as weight"	3	N	
	5	N	
Accessorial Charges	9.2	N	
	25	AN	
Total Freight Chgs	20	AN	
	2	A	
Destination Name	9	N	
	3	N	
Destination City	3	N	
	4	N	
Destination State	5	N	
	5	N	
Destination Zip	3	N	
	3	N	
Code	3	N	
	3	N	
Destination Area	3	N	
	4	N	
Code	3	N	
	4	N	
Destination Prefix	3	N	
	4	N	
Destination Phone	5	N	
	5	N	
Mileage	5	N	
	5	N	

The data processing device 34 sends the transaction information to a central processor 40. In one embodiment, the data processing device 34 is implemented using a conventional personal computer programmed to operate under the control of an operating system stored in the memory. These types of computer arrangements are not presently programmed to conventionally interface with a central processing center and a processing device located at a shipper's premises. One advantage of interfacing the

central processor 40 with shipper access terminal 32 is that the shipper access terminal 32 can control the quantity, quality, and timing of information that is transmitted between the shipper processor 24 and the central processor 40. The access terminal 32 can also control the communication sessions between the shipper processor 24 and the central processor 40. The shipper access terminal 32 is designed so that the shipper 20 may directly access the transaction information. The shipper 20 will not be allowed to make changes to the transaction information, but is able to add additional information. This ensures the integrity of the transaction information. An additional advantage of the access terminal 32 is that the data processing device 34 can receive real-time information from the shipper processor 24 regarding the shipment transaction.

In an alternative embodiment, the shipper access terminal 32 is linked to a magnetic stripe card reader. The card reader accepts a card and transmits the data contained therein to the data processing device 34 of the shipper access terminal 32. The magnetic stripe card reader accepts an identification card from a user of the system. The identification card contains relevant user information. In an alternative application, the access terminal 32 is linked to a bar code reader which is designed to receive information from a bar code and input the bar code information into the data processing device 34. The bar code is printed on the BOL or on a carrier identification card.

The data processing device 34 sends 318 the transaction information to the central processor 40. The design of the central processor 40 is dictated by the desired speed, the number of users, and the amount of data to be processed.

FIG. 4 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 to manipulate the transaction information according to the present invention. The central processor 40 receives 402 the transaction information and performs 404 an integrity check on the incoming information to ensure that the information is correctly formatted and contains no errors. If the integrity check is unsuccessful, the transaction information is stored in a suspense file in a data storage unit 42. Once the error is corrected, the corrected transaction may be sent into the normal process flow. If the integrity check is successful, the central processor 40 retrieves 406 authorized user profile lists from the data storage unit 42.

The data storage unit 42 is essentially a memory unit which stores information relevant to the shipping transaction. The design of the data storage unit 42 is dictated by the amount of data needed to be stored.

The authorized user profile lists represent the users and combination of users that are authorized to use the system. Authorized user profile lists include a shipper profile list, a carrier profile list, a carrier/shipper profile list, and a shipper access terminal profile list. The profile lists provide the cross reference between the payment ID (assigned by central processor 40), an account ID (assigned by an issuing processor 45), and a merchant number (assigned by a paying processor 54).

An authorized shipper profile list identifies information regarding the shipper and the shipment as can be seen below in Table 2.

TABLE 2

Shipper Profile				
DATA ELEMENT	WIDTH	TYPE	DESCRIPTION	
Shipper ID	10	N	Uniquely identifies a legal entity using a single BOL system, assigned by the CP 40.	
Account ID	16	N	Account # assigned to shipper 20 by issuing processor 54.	
Shipper Name	32	A/N	Headquarters Address	
Shipper Address 1	32	A/N		
Shipper Address 2	32	A/N		
Shipper City	28	A/N		
Shipper State/Province	3	A/N	Supplied by CP 40 when record is built. YYYYMMDD format	
Shipper Country	3	A/N		
Shipper Contact	32	A/N		
Shipper Phone	10	N		
Open Date	8	N	Automatically updated by CP 40 every time a BOL record is processed	
Date of First Activity	8	N	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.	
Date of Last Activity	8	N	Automatically updated by system when current status field is updated. YYYYMMDD format	
Current Status	4	A	User will key status, valid values are OPEN, CLSD, HOLD	
Current Status Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format	
Pending Status	4	A	Automatically stamped by CP 40. EHM format	
Effective Date	8	N	Automatically stamped by user profile by CP 40.	
Last update date	8	N	Automatically pulled from user profile by CP 40.	
Last update time	4	N		
Last Update User	8	A/N		

An authorized carrier profile list identifies information regarding the carrier 22 and the shipment transaction as can be seen below in table 3. Included in the carrier profile is a merchant number which a paying processor 54 assigns to the carrier 22. Each carrier 22 can have multiple merchant numbers if desired. This allows carrier flexibility to assign different merchant numbers for different regions or different shippers. This flexibility facilitates the carrier's business management process. It is not known of existing systems which provide such flexibility.

TABLE 3

Carrier Profile				
COLUMN NAME	DATA WIDTH	DATA TYPE	DESCRIPTION	
SCAC	4	A/N	4 character code that uniquely identifies a Carrier 22.	
Merchant Number	10	N	Paying processor 54 assigns to each carrier.	
Carrier 22 Name	32	A/N	DBA name of Carrier HQ	
Carrier Address 1	32	A/N		
Carrier Address 2	32	A/N		
Carrier City	28	A/N		

TABLE 3-continued

COLUMN NAME	Carrier Profile		
	DATA WIDTH	DATA TYPE	DESCRIPTION
Carrier State/Province	3	A/N	
Carrier Country	3	A/N	
Carrier Contact	32	A/N	Name of primary contact at Carrier HQ
Carrier Phone	10	N	Phone number of primary contact at Carrier HQ
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system on this Carrier 22 - YYYYMMDD format
Date of Last Activity	8	N	Automatically updated by system every time a BOL record is processed for this Carrier 22
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated. YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40
Last Update User	8	A/N	HHMM format Automatically pulled from user profile lists by CP 40

An authorized shipper/carrier profile list identifies information regarding valid shipper carrier combinations as can be seen below in table 4

TABLE 4

COLUMN NAME	Shipper/Carrier Profile		
	DATA WIDTH	DATA TYPE	DESCRIPTION
Shipper ID	10	N	
Carrier SCAC	4	A/N	
Mechant Number	10	N	Assigned by Paying processor 54. If blank, use default value from carrier profile.
Proof of Delivery (POD)	1	A	"Y" for POD to be required, "N" for POD not required
Type of POD	4	A	Identifies in what manner the POD is to be received.
Auto close days	2	N	Number of days after which the transaction will close and be paid to the Carrier 22 regardless of whether or not POD has been posted.
Open Date	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of First Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system - YYYYMMDD format

TABLE 4-continued

COLUMN NAME	Shipper/Carrier Profile		
	DATA WIDTH	DATA TYPE	DESCRIPTION
Date of Last Activity	8	N	Automatically updated by CP 40 every time a BOL record is processed
Current Status	4	A	Valid values are OPEN, CLSD, HOLD. Automatically updated on effective date if effective date was pre-entered or as part of on-line transaction when effective date is set to today.
Current Status Date	8	N	Automatically updated by CP 40 when current status field is updated. YYYYMMDD format
Pending Status	4	A	User will key status
Effective Date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update date	8	N	Automatically stamped by CP 40
Last update time	4	N	Automatically stamped by CP 40
Last Update User	8	A/N	HHMM format Automatically pulled from user profile lists

An authorized shipper access terminal profile identifies the shipper 20 as well as the shipping dock. A shipper has a separate shipper access terminal profile for each dock. The central processor 40 assigns a different dock ID for each dock. The information included in the access point profile is listed below in table 5

TABLE 5

COLUMN NAME	Access Terminal Profile		
	WIDTH	TYPE	DESCRIPTION
Shipper ID	10	N	Uniquely identifies a legal entity using a single BOL system
Dock ID	3	N	Uniquely identifies a particular physical dock location with a shipper ID.
Account ID	16	N	Issuing Processor 54 assigns. Defaults from shipper profile, can be overridden by shipper.
Dock Name	32	A/N	DBA name of dock originating BOL
Dock Address 1	32	A/N	Street address of dock originating BOL
Dock Address 2	32	A/N	
Dock City	28	A/N	
Dock State/Province	3	A/N	
Dock Country	3	A/N	
Dock Contact	32	A/N	
Dock Phone	10	N	
Open Date	8	N	To be used for reporting against completion transaction
Date of First Activity	8	N	Automatically supplied by CP 40 when record is built. YYYYMMDD format
Date of Last Activity	8	N	Automatically supplied by CP 40 when first BOL record is received by system - YYYYMMDD format
Current Status	4	A	Automatically updated by CP 40 every time a BOL record is processed
			Automatically updated by CP 40 on the effective date if effective date was pre-entered or as part of the on-line transaction if the effective date is changed

TABLE 5-continued

Access Terminal Profile			
COLUMN NAME	WIDTH	TYPE	DESCRIPTION
Current Status Date	6	N	to today. Valid values are OPEN, CLSD, HOLD Automatically updated by CP 40 when current status field is updated. YYYYMMDD format
Pending Status Effective Date	4	A	User will key status
Last update date	8	N	Default to today's date with user ability to override to a future date. YYYYMMDD format
Last update time	4	N	Automatically stamped by CP 40
Last Update User	8	A/N	Automatically pulled from user profile lists

The central processor 40 authenticates 408 the transaction information by comparing elements of transaction information with the authorized user profile lists. The elements of the transaction information used for authentication include; the identity of the shipper, the identity of the shipper's dock, and the identity of the carrier. If the authentication is successful, the central processor 40 assigns 410 a payment identification number (payment ID) to the transaction information and stores 412 the transaction information in the data storage unit 42. The payment ID is a unique key for the transaction record which the central processor 40 uses to centrally track the transaction. The payment ID includes specific information regarding the shipment transaction including; the shipper identification number, the BOL number, and the shipping date. The advantage of the payment ID is that it allows the central processor 40 to more efficiently and accurately track the different actions occurring within the system. The payment ID can be referenced to the specific identification numbers which any of the users may assign. The payment ID is now considered "open". Open is a term used to signify that the shipper 20 has transferred the goods to the carrier 22, and the carrier 22 has not yet completed the shipment.

If the authentication is unsuccessful, the central processor 40 stores 414 the invalid transaction in a suspense file in the data storage unit 42. When an invalid transaction is stored, a notification is sent which indicates that an error has occurred and is in need of further review and correction. Once the error is corrected, the corrected transaction may be sent into the normal process path.

The central processor 40 sends the authenticated transaction information, including the shipper identity and the cost of the shipment, to an issuing institution 44 for authorization. FIG. 5 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 to perform an authorization check according to the present invention. The issuing institution 44 contains an issuing processor 45. The issuing processor 45 maintains accounts for one or more shippers. Each account includes information regarding credit limits, open authorizations, unpaid balances, and the resulting open-to-buy. Open-to-buy measures the unused credit limit.

The issuing processor 45 receives 502 the authorization request from the central processor 40. The issuing processor 45 compares 504 the authorization request to the open-to-buy of the shipper and attempts to approve 506 the request. If the shipper 20 has enough open to buy, the issuing processor 45 approves the authorization request. The issuing

processor 45 stores 507 the approved authorization request and decreases 508 the open-to-buy. The issuing processor 45 sends 510 the authorization approval to the central processor 40 and the central processor 40 updates the records in the data storage unit 42. If the authorization is successful, the payment ID is considered "authorized". If the authorization is unsuccessful, the issuing processor 45 sends 512 an authorization decline to the central processor 40.

After the goods are delivered to a receiver, the payment ID must be "closed". Closed refers to providing proof of delivery (POD) of the shipment in order to complete the shipment transaction. POD includes the identity of the shipper, the BOL number, the carrier invoice number, the delivery date and time, the person acknowledging receipt, and the condition of the shipment. A carrier processor 46 receives the POD and sends the information to the central processor 40.

In one embodiment, the carrier processor 46 is a conventional bar code reader. The bar code reader is used by the carrier 22 to read a bar code on the shipment. The bar code reader sends the POD information to the central processor 40.

In an alternative embodiment, the carrier processor 46 is a voice response unit 48 (VRU). FIG. 6 is a block diagram illustrating an example flowchart for programming the VRU 48 according to one embodiment of the present invention. In this embodiment, the central processor 40 extracts an open payment ID from the data storage unit 42. The central processor 40 sends information relating to the open payment ID, including the BOL number and the shipper ID, to the VRU 48. The VRU 48 receives 602 the open BOL number.

A standard touch-tone telephone is used to access the VRU 48. While the location of the telephone is not critical, locating it at the receiver's premises promotes efficiency, convenience, and accuracy. It is convenient and efficient because the carrier 22 can call the VRU 48 at the exact time the shipment is delivered. It is accurate in that the phone number of the receiver, automatically captured by the VRU 48, will identify where and when the call was made.

The VRU 48 prompts 604 the carrier 22 for the shipper ID. The VRU 48 receives 606 the shipper ID and attempts to match 608 the entered shipper ID with an open shipper ID. If the shipper ID is matched, the VRU 48 prompts 610 the carrier 22 for the BOL number. The VRU 48 receives 612 the entered BOL number and attempts to match 614 the combination of the entered BOL number and shipper ID with an open BOL number and shipper ID. If the BOL number and shipper ID combination is matched, the VRU 48 prompts 616 the carrier 22 for condition of shipment. The VRU 48 receives 618 the condition of shipment and sends 620 the POD information which includes BOL number, the shipper ID, and the condition of the shipment to the central processor 40.

If the VRU 48 cannot match either the shipper ID and the BOL number, the VRU 48 prompts 622 the carrier 22 to either try again or routes 624 the carrier 22 to customer service where the problem can be resolved.

FIG. 7 is a block diagram illustrating an example flowchart for programming the central processor 40 of FIG. 1 generating a deposit file according to the present invention. The central processor 40 receives 702 the matched BOL number, the shipper ID, and the condition of the shipment from the carrier processor 46. The central processor 40 validates 704 the incoming data to ensure that it is error free and properly formatted. The central processor 40 extracts 706 the open payment ID from the data storage unit 42. The

central processor 40 authenticates 708 the matched BOL number with an open payment ID. If the BOL number and payment ID are authenticated, the payment ID is considered complete. The central processor stores 710 the completed transaction and corresponding payment ID in the data storage unit 42. If authentication is unsuccessful, the central processor 40 stores 712 the information in a suspense file where the problem can be manually resolved as discussed above.

A payment ID can be completed by the above manner, or a payment ID can expire. A payment ID expires when a pre-programmed number of days has elapsed since the shipping date. This preprogrammed number of days is defined as auto close days in the data storage unit 42. A particular transaction is identified by the shipper and carrier to expire on a specific date, the effective date, whether or not the proof of delivery is received. On the effective date, the payment process begins. This has the advantage that the carrier 22 will be paid for every shipment carried. Payment to the carrier 22 is expedited if proof of delivery is received.

The central processor 40 periodically extracts 714 from the data storage unit 42 the transactions that are listed as "completed and authorized" or "expired and authorized." The central processor 40 sorts and batches 716 the transactions by the merchant number. The central processor 40 generates 718 a deposit file 50 for those authorized transactions which are completed or expired and which have not been previously extracted. In a particular application, one deposit file 50 is created for all transactions completed by each carrier. The deposit file 50 is formatted so that it is compatible with the paying processor's 54 format. The deposit file 50 includes the payment ID, the account ID, the carrier identity, the BOL number, the destination city, the destination state, the destination zip code, and the cost of shipment. The cost of the shipment represents the amount that is owed by the shipper 20 and payable to the carrier 22.

The central processor 40 performs 720 a general integrity check on the deposit file 50. The integrity check includes: ensuring that the payment ID has been authorized, ensuring that the BOL is completed or expired, and ensuring that payment has not yet occurred for the particular payment ID.

If the central processor 40 validates the deposit file 50, the processor 40 sends 722 the deposit file 50 to a paying processor 54 of a paying institution 52. In a particular application, the deposit file 50 is conventionally sent via a telephone transmission. The paying institution has a paying processor 54 which processes financial information and maintains financial accounts for the carrier 22. The paying processor 54 is generally designed to process financial information. The paying institution 52 maintains one or more accounts for each carrier 22.

FIG. 8 is a block diagram illustrating an example flowchart for programming the paying processor 54 of FIG. 1 according to the present invention. The paying processor 54 receives 802 the deposit file 50 and sends 804 a confirmation message to the central processor 40 that the deposit file 50 was received.

The paying processor 54 validates 806 the incoming deposit file and generates 808 payment to the carrier 22. The paying processor 54 tenders 810 payment to the carrier 24 and sends 812 this information to the central processor 40 so that the central processor 40 can update the data storage unit 42. In a particular application, the paying processor 54 tenders payment by directly paying the carrier 22. In an alternative embodiment, the paying processor 54 sends the payment to the carrier's bank conventionally through the Federal Reserve's Automated Clearing House.

One advantage associated with the generation of payments to the carrier 22 is that the carrier 22 is paid relatively soon after the carrier 22 has completed the shipment. This provides the carrier 22 with improved cash flow and reduces the carrier's working capital requirements. Another advantage is that the carrier 22 does not have to audit or rate the payment which saves time and money. This streamlined approach reduces the carrier's administrative costs associated with processing a payment.

The paying processor 54 generates 814 a systems bill for the carrier 22. This systems bill represents the amount the carrier 22 owes for the service provided by the system of the present invention. The paying processor 54 sends 816 the systems bill to the carrier 22. The paying processor 54 sends 818 the systems bill information to the central processor 40 where the information is stored in the data storage unit 42. The paying processor 54 delivers 820 the paid shipment transactions to the issuing processor 45 of the issuing institution 44.

The issuing institution 44 maintains one or more accounts for the shipper 20 and extends and manages credit to the shipper 20. The issuing processor 45 maintains the amount paid to each carrier 22 on behalf of each shipper 20. FIG. 9 is a block diagram illustrating an example flowchart for programming the issuing processor 45 of FIG. 1 to credit a transaction according to the present invention. The issuing processor 45 receives 902 the paid transactions from the paying processor 54. The issuing processor 45 retrieves 904 the approved authorization list and compares 906 the authorization list with the paid transactions. The issuing processor 45 attempts to match 908 the paid transactions with an authorized transaction. If a match is made, no change is made to the open to buy. If a match is not made, the issuing processor 45 decreases 910 the open to buy.

The issuing processor 45 posts 912 the cost of shipment for all paid transactions to the shipper's account thereby increasing the balance due from the shipper 20. The issuing processor 45 periodically bills 914 the shipper 20 for the posted financial transactions paid on behalf of the shipper 20 and periodically receives 916 payment from the shipper 20. When the issuing processor 45 receives payment, the processor 45 posts payment to the shipper's account and increases 918 the open-to-buy.

The issuing processor 45 communicates with the central processor 40 and sends information regarding shipment 20 payment and billing. The central processor 40 updates the data storage unit 42 with this information.

In an alternative embodiment, the paying institution 52 is incorporated into the issuing institution 44. This results in one processor performing the functions of the issuing processor 45 and the paying processor 54.

A further advantage of the computer processing system for a shipment transaction involving a shipper and a carrier is that the data storage unit 42 and central processor 40 interface to store and provide value-laden information to the users of the system. The central processor 40 provides a security check for all information entering and leaving the data storage unit 42. The central processor edits incoming files and provides on-line alarms for duplicate files, stale dated files, out of balance files, and files with corrupt data. The central processor 40 maintains a suspense file in the data storage unit 42 where incoming invalid transaction information and unmatched proof of delivery information are stored. With a centrally located suspense file, the problem resolution process is more efficient.

The central processor 40 maintains data views and tables and stores this information in the data storage unit 42. The

central processor 40 maintains a BOL Header Table for each BOL number which generally includes a summary of all information relating to that shipment transaction. This information is shown in the table 6 below. The source of the particular data element is indicated in column four of table 6.

TABLE 6

BOL Header Data Elements				
Data Element	Length	Type	Source	Purpose
Shipper ID	10	N	CP 40	Record ID
Dock ID	3	N	CP 40	Record ID
Account ID	16	N	CP 40	Record ID; reporting
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID; reporting
SCAC	4	A	Shipper	Alternate index, identifies Carrier
Merchant #	10	N	CP 40	Alternate index, for CP 40 usage
Vendor #	10	N	Shipper	Alternate index, allows Shipper to specify its vendor number for a given carrier
Customer Number	10	N	Shipper	Alternate index, allows Shipper to specify its customer number for a given receiver
Customer PO #	15	AN	Shipper	Alternate index, reporting
Shipper Order #	15	AN	Shipper	Alternate index
Vendor Order Number	15	AN	Shipper	Reporting, alternate locator
Shipper Name	35	AN	Shipper	Reporting
Shipper Contact	20	A	Shipper	Claims
Person				
Shipper Phone #	15	AN	Shipper	Claims
Origia	10	AN	Shipper	Reporting
Designator				
City	20	AN	Shipper	reporting
State	2	A	Shipper	reporting
ZIP Code	9	N	Shipper	reporting
Division Code	2	N	Shipper	reporting
Reference B/L #1	15	AN	Shipper	Consolidated Shipments
Reference B/L #2	15	AN	Shipper	Consolidated Shipments
Reference B/L #3	15	AN	Shipper	Consolidated Shipments
Bill of Lading	1	AN	Shipper	Reporting
Type				
Shipment Mode	3	AN	Shipper	LT, TL, RAI, AIR
Inbound	1	AN	Shipper	reporting
Outbound Flag				
Prepaid, Collect	1	AN	Shipper	reporting
Flag				
COD Flag	1	AN	Shipper	reporting
COD Amount	9.2	AN	Shipper	reporting
Shipment Value	9.2	AN	Shipper	reporting; claims
Driver Name	20	AN	Shipper	Reporting; Claims
Trailer/Car #	15	AN	Shipper	reporting; claims
Trailer/Car Seal #	15	AN	Shipper	reporting; claims
Import, Export	1	AN	Shipper	reporting
Flag				
# Stops	2	N	Shipper	reporting
Stop Off Charges	7.2	AN	Shipper	reporting
Rated Freight	7.2	AN	Shipper	payment, reporting
Charges				
Cube Dimensions	5	N	Shipper	reporting
Shipments "as weight"	7.2	N	Shipper	reporting; claims
Accessorial Charges	7.2	AN	Shipper	payment, reporting
Total Freight	9.2	AN	Shipper	payment, reporting
Charges				
Destination Name	25	AN	Shipper	reporting
Destination City	20	AN	Shipper	reporting
Destination	2	A	Shipper	reporting
State				
Destination Zip	9	N	Shipper	reporting
Code				

TABLE 6-continued

BOL Header Data Elements				
Data Element	Length	Type	Source	Purpose
Destination Area	3	N	Shipper	reporting, verification
Code				
Destination	3	N	Shipper	reporting, verification
Prefix	4	N	Shipper	reporting, verification
Phone				
Mileage	5	N	Shipper	reporting
Voucher/Check #	12	AN	CP 40	inquiry
Ship Date	8	N	Shipper	Life cycle tracking
CP 40 Receipt	8	N	CP 40	Life cycle tracking
Date				
Storage Insert	8	N	CP 40	Life cycle tracking
Date				
VIR Extract	8	N	CP 40	Life cycle tracking
Date				
Authorization	8	N	CP 40	Life cycle tracking
Date				
Authorization #	6	AN	leasing	From authorization response feed
Auth Response	2	AN	leasing	From authorization response feed
Code				
Delivery Date	8	N	CP 40	Life cycle tracking
Completion Date	8	N	CP 40	Life cycle tracking
Deposit Extract	8	N	CP 40	Life cycle tracking
Date				
Settlement Date	8	N	Paying	From Settlement record
Settlement	12	AN	Paying	From Settlement record
DDA #				
Shipper Billing	8	N	leasing	From statement billing
Date				
Delivery Area	3	N	Carrier	POD tracking, claims
Code				
Delivery Prefix	3	N	Carrier	POD tracking, claims
Delivery Phone	4	N	Carrier	POD tracking, claims
Receiver Name	20	A	Carrier	POD tracking, claims
Receipt	1	A	Carrier	Quality of service
Crosslink				
POD ID	15	AN	Carrier	Provided by carrier
				22 (such as FedEx, UPS) who has accepted POD system
BOL Line Item Detail Data Elements				
Data Element	Length	Type	Source	Purpose
Shipper ID	16	N	CP 40	Record ID
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID
Product	28	AN	Shipper	reporting, claims
Description				
Product ID	8	AN	Shipper	reporting, claims
Product Value	7.2	AN	Shipper	reporting, claims
Haz. Mat Flag	1	AN	Shipper	reporting, claims
Item Weight	7.2	N	Shipper	reporting, claims
Total Pcs	5	N	Shipper	reporting, claims
Item "as weight"	7.2	N	Shipper	reporting
Unit of Measure	4	AN	Shipper	reporting, claims
Accounting Code	25	AN	Shipper	reporting

In addition, the central processor 40 maintains BOL line item details from the transaction information. The BOL line item details generally consist of information relating to the goods of the shipment as can be seen below in table 7.

TABLE 7

BOL Line Item Detail Data Elements				
Data Element	Length	Type	Source	Purpose
Shipper ID	16	N	CP 40	Record ID
Bill of Lading #	15	AN	Shipper	Record ID
Ship Date	8	N	Shipper	Record ID
Product	28	AN	Shipper	reporting, claims
Description				
Product ID	8	AN	Shipper	reporting, claims
Product Value	7.2	AN	Shipper	reporting, claims
Haz. Mat Flag	1	AN	Shipper	reporting, claims
Item Weight	7.2	N	Shipper	reporting, claims
Total Pcs	5	N	Shipper	reporting, claims
Item "as weight"	7.2	N	Shipper	reporting
Unit of Measure	4	AN	Shipper	reporting, claims
Accounting Code	25	AN	Shipper	reporting

TABLE 7-continued

BOL Line Item Detail Data Elements				
Data Element	Length	Type	Source	Purpose
Item Freight charges	7.2	N	Shipper	reporting, claims

In the example system application of FIG. 1, the carrier 22 will not have access to the BOL line item product value, but will be able to see the line item freight charges.

A further advantage of the shipment transaction system of FIG. 1 is that the system allows multiple users to obtain information about the same shipment from the same source. Since the system supplies information from the same source, all users will obtain the same information at the same time. This advantage of timeliness does not exist in current systems. Existing systems are not known to provide a single source of up-to-date information regarding multiple shipment transactions.

In an alternative embodiment, multiple users access the shipment information via the central processor 40. The shipment information is stored in the data storage unit 42. The central processor 40 is electronically linked to a multitude of user stations. The link between the central processor 40 and a user station allows for conventional two-way communication. The user station is a standard personal computer comprising of a video display, a keyboard, a central processor, and a modem link. A user initiates a request for information by accessing the central processor 40 using the personal computer. When the user is logged into the central processor 40, the central processor 40 prompts the user to enter a password.

The central processor 40 provides a security check on all information requests. The security check is programmed such that the shipper 20 and carrier 22 are restricted to accessing only their own data. In addition, the processor 40 is programmed such that unauthorized parties are denied access.

The central processor 40 receives informational requests from the user. The central processor 40 accesses the data storage unit 42 and extracts the requested information and transmits the information to the user's station. The advantage of such an information service is clear. Users will be able to obtain current information regarding a shipment transaction.

In a particular application, once a user has access to the system, the central processor 40 will prompt the user for a range of dates of interest including the current day, the previous day, monthly total, yearly total, or a specified date range. The central processor 40 displays the transaction information, freight amounts, shipment costs, total weight, and cost per pound for various types of transactions including: transactions added to the data storage unit, transactions with proof of delivery, transactions that have expired, transactions in the suspense file, transactions paid to carrier, transactions in transit, transactions declined, and transactions approved.

The central processor 40 allows user's to request a particular transaction by entering any one of a multitude of transaction elements. The central processor 40 identifies a particular transaction with reference to the BOL number, the shipper's customer number for the receiver 22, the payment ID, the carrier's customer number for the shipper 20, the merchant number, the account ID, the receiver's order

number for the shipper 20, the shipper's order number for the BOL number, or the shipping date. This ensures compatibility between the user reference numbers such that the user can access information using their unique reference number assigned to the transaction.

The example application has additional advantages. The central processor 40 provides to all authorized users the ability to generate custom analysis of their own data. This has the advantage of giving the carrier 22 the ability to extract payment data needed to automatically post his accounts receivable system. This is an advantage over existing systems which rely on manual distribution of payment against the account receivable system. Similarly, the shipper can extract payment data and automatically post his accounts payable which closes out the individual accounts payable due to each carrier. An advantage stemming from this automated system is that the shipper 20 does not need a paper invoice in order to have proof of delivery. The shipper 20 accesses the central processor 40 and verify which shipments have been delivered by a particular carrier 22. Similarly, the carrier 22 accesses the central processor 40 to find out which transactions have been paid out by the shipper 20. This informational system removes much uncertainty from the shipment process which promotes more efficient use of available resources such as working capital, transportation, and personnel.

In a particular application, the central processor 40 generates standard shipment transaction summary reports and provides appropriate access to the reports by various users. These reports include a transaction inventory control report, an open aging summary report, a suspense inventory control by source report, and a suspense inventory aging summary report. The central processor 40 uses the security profiles to determine which subset of transaction records will be summarized for each user. For example, the shipper 20 has access only to that shipper's reports.

The inventory control report provides control totals of BOL numbers, merchandise value, and freight value. There are key control points including: starting inventory position, new BOL's from shippers, BOL's closed since the last report by the different methods discussed for closing BOL numbers, BOL's re-opened since the last report by manual proof of delivery override via customer service, BOL's canceled since the last report, and the ending inventory position.

The open aging summary report contains those BOL numbers that have not been delivered. In addition, the freight value and merchandise value for each shipper ID and Dock ID are supplied for distinct age groups. The age groups include groupings by consecutive days since the shipping date and one group for 10 days past the shipping date. The suspense inventory control by source report includes merchandise and freight value amounts of transactions in the suspense file. Several control points for the suspense inventory control include: starting inventory position, new inventory added since last report, inventory cleared since last report, inventory deleted since last report, inventory undeleted since last report, and ending inventory position. The suspense inventory aging summary report provides an aged summary of suspense files including the merchandise and freight value of items that are in the suspense file by original receipt date.

The central processor 40 generates detailed reports including: the inventory aging detail report, the suspense inventory aging detail report, and the declined item aging detail report. The detail reports are viewed by either the

shipper ID/dock ID/account ID combination or by the carrier ID/merchant number combination. The inventory aging detail report lists the open BOL numbers sorted by the days in inventory, the shipper ID combination, and the BOL number. The inventory detail report lists the merchandise and freight value associated with each open BOL number. The suspense inventory aging detail report lists open BOL numbers by source and receipt date. Several fields are displayed including: shipper ID, dock ID, account ID, BOL number, carrier ID, freight value, and the merchandise value. The declined item aging detail report allows users to research the cause of exception items and lists the shipper ID combination, ship date, authorization time, BOL number, shipper invoice number, merchant number, and freight value. The declined item aging detail report is viewed by either shipper ID/dock ID/account ID combination, or by carrier ID/merchant number combination.

The central processor 40 generates two reports that reference declined authorizations. These reports include the declined item summary report and the declined item aging report. The declined item summary report summarizes information regarding the declined authorization. The declined item aging report summarizes the information regarding the declined authorization by the shipping date.

Accordingly, the present invention provides, among other aspects, a computer processing system for a shipment transaction involving a shipper and a carrier. Other aspects and embodiments of the present invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and illustrated embodiments be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

1. For shipment transaction processing involving transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, a shipment transaction system comprising: a central processor arrangement programmed and configured to maintain data relating to an authorized profile list criterion that includes information about authorized users, and programmed and configured to process the transaction information by determining whether the transaction information satisfies the authorized profile list criterion, and using the authorized profile list criterion to generate information for auditing a transaction between said one of a plurality of shippers and said one of a plurality of carriers.

2. A shipment transaction system, according to claim 1, further including a computer arrangement that is programmed and configured to respond to shipment-related information from an external device by generating a set of transaction information.

3. A shipment transaction system, according to claim 2, further including means for informing the central processor arrangement of delivery of the goods by the carrier the central processor arrangement being responsive to the informing means and using the transaction information and the authorized profile list criterion to audit the shipment transaction and payment thereof.

4. A shipment transaction system, according to claim 1, wherein the central processor arrangement is further programmed and configured to update a previously-created authorized profile list criterion.

5. A shipment transaction processing involving transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, a shipment transaction system comprising: a central processor

arrangement programmed and configured to process the transaction information by storing an authorized profile list criterion that includes information about authorized users, by determining whether the transaction information satisfies the authorized profile list criterion, and by using the authorized profile list criterion to generate information for auditing a transaction between said one of a plurality of shippers and said one of a plurality of carriers.

6. A shipment transaction system, according to claim 5, further including means for informing the central processor arrangement of delivery of the goods by the carrier, the central processor arrangement being responsive to the informing means and using the transaction information and the authorized profile list criterion to audit the shipment transaction and payment thereof.

7. A shipment transaction system, according to claim 6, further including a computer arrangement that is programmed and configured to respond to shipment-related information from an external device by generating a set of transaction information.

8. A shipment transaction system, according to claim 7, wherein the central processor arrangement is further programmed and configured to update a previously-created authorized profile list criterion.

9. A shipment transaction system for processing transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, the shipment transaction system comprising:

a computer arrangement that is programmed and configured to respond to shipment-related information from said one of the shipper by generating a set of transaction information that includes at least one transaction code to identify the transaction and the time at which the shipment is initiated at the shipper's premises; and

a central processor arrangement located remote from the shipper's premises and programmed and configured to respond to the transaction information, maintain an authorized profile list criterion, and determine whether the transaction information satisfies the authorized profile list criterion, the central processor arrangement being responsive to a notification of delivery of the goods by the carrier and using the transaction information and the authorized profile list criterion to audit the shipment transaction.

10. For shipment transaction processing involving transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, a shipment transaction system comprising:

means for storing an authorized profile list criterion that includes information about authorized users; and

means for maintaining data relating to the authorized profile list criterion, and for processing the transaction information by determining whether the transaction information satisfies the authorized profile list criterion, and using the authorized profile list criterion to generate information for auditing a transaction between said one of a plurality of shippers and said one of a plurality of carriers.

11. For shipment transaction processing involving transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, a shipment transaction system comprising:

means for storing an authorized profile list criterion that includes information about authorized users; and

means for processing the transaction information by storing the authorized profile list criterion, by determining

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whether the transaction information satisfies the authorized profile list criterion, and by using the authorized profile list criterion to generate information for auditing a transaction between said one of a plurality of shippers and said one of a plurality of carriers.

12. A shipment transaction system for processing transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, the shipment transaction system comprising:

a means for responding to shipment-related information from said one of the shipper by generating a set of transaction information that includes at least one transaction code to identify the transaction and the time at which the shipment is initiated at the shipper's premises; and

a CPU means, located remote from the shipper's premises, for responding to the transaction information, for maintaining an authorized profile list criterion, and for determining whether the transaction information satisfies the authorized profile list criterion, the CPU means being responsive to a notification of delivery of the goods by the carrier and using the transaction information and the authorized profile list criterion to audit the shipment transaction.

13. For shipment transaction processing involving transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, a method for monitoring a shipment transaction comprising:

providing an authorized profile list criterion that includes information about authorized users;

using a computer arrangement, maintaining data relating to the authorized profile list criterion and processing the transaction information by determining whether the transaction information satisfies the authorized profile list criterion, and by using the authorized profile list criterion to generate information for auditing a transaction between said one of a plurality of shippers and said one of a plurality of carriers.

14. A method for monitoring a shipment transaction, according to claim 13, further including sending shipment-related information from an external device and generating a set of transaction information therefrom.

15. A method for monitoring a shipment transaction, according to claim 14, further including informing the

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computer arrangement of delivery of the goods by the carrier, and using the computer arrangement to audit the shipment transaction and payment thereof in response to the transaction information and the authorized profile list criterion.

16. A method for monitoring a shipment transaction, according to claim 15, further including updating a previously-created authorized profile list criterion.

17. For shipment transaction processing involving transaction information related to goods shipped from one of a plurality of shippers by one of a plurality of carriers, a method for monitoring a shipment transaction comprising:

providing an authorized profile list criterion that includes information about authorized users;

using a computer arrangement, processing the transaction information by storing the authorized profile list criterion, by determining whether the transaction information satisfies the authorized profile list criterion, and by using the authorized profile list criterion to generate information for auditing a transaction between said one of a plurality of shippers and said one of a plurality of carriers.

18. A method for monitoring a shipment transaction, according to claim 17, further including sending shipment-related information from an external device and generating a set of transaction information therefrom.

19. A method for monitoring a shipment transaction, according to claim 18, further including informing the computer arrangement of delivery of the goods by the carrier, and using the computer arrangement to audit the shipment transaction and payment thereof in response to the transaction information and the authorized profile list criterion.

20. A method for monitoring a shipment transaction, according to claim 19 further including updating a previously-created authorized profile list criterion.

21. A method for monitoring a shipment transaction, according to claim 20, further including sending shipment-related information from an external device and generating a set of transaction information therefrom.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,571,149 B1
DATED : May 27, 2003
INVENTOR(S) : Hahn-Carlson

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 1,

Line 6, delete "application".

Line 33, "carrier" should read -- carrier's --.

Column 3,

Lines 13-14, delete "or every illustrated implementation,".

Column 4,

Line 12, "send" should read -- sends --.

Line 30, "carrier 24" should read -- carrier 22 --.

Column 5,

Line 56, "type is" should read -- Type is --.

Column 6,

Line 13, Table 1: "it's" should read -- its --.

Line 46, Table 1: "weight~" should read -- weight" --.

Column 9,

Line 42, "table 4" should read -- table 4. --.

Column 10,

Line 32, "table 5" should read -- table 5. --.

Column 11,

Line 8, Table 5: Width "6" should read -- Width -- 8 --.

Column 13,

Line 44, delete the second "a".

Column 15,

Line 24, Table 6: "it's" should read -- its --.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,571,149 B1
DATED : May 27, 2003
INVENTOR(S) : Hahn-Carlson

Page 2 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 16,

Line 61, Table 7: "\$N" should read -- AN --.

Column 17,

Line 61, "user's" should read -- users --.

Signed and Sealed this

Tenth Day of February, 2004

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a distinct "D".

JON W. DUDAS
Acting Director of the United States Patent and Trademark Office